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## IMPRESUM

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	<p style="text-align: center;"><b>International Journal of Cognitive Research in Science, Engineering and Education</b></p> <p style="text-align: center;"><b>(IJCRSEE)</b></p>
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## EDITORIAL

**International Journal of Cognitive Research in Science, Engineering and Education (IJCRSEE)** is an open access to the international peer reviewed multidisciplinary journal that publishes professional, scientific and review papers in the field of pedagogical psychology and humanities, social, IT, mathematics and other sciences. Editorial Board strives to provide a possibility for the scientists of different fields to publish the results of their research, technical and theoretical studies. *IJCRSEE* is multidisciplinary in approach, and will publish a great range of papers: reports of qualitative case studies, quantitative experiments and surveys, mixed method studies, action researches, meta-analyses, discussions of conceptual and methodological issues, etc. *IJCRSEE publisher is* The Association for the Development of Science, Engineering and Education.

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*IJCRSEE* has regular sections: Original Research, Review Articles, Studies and articles, Book Reviews, Case Studies, and is published twice a year. This journal provides an immediate open access to its contents, which makes research results available to the public based on the global exchange of knowledge.

The primary **aim** of IJCRSEE is to provide relevant scientific results for novice and expert scholars and to enable researchers to publish and share their work with the academe throughout the world. The aim of the journal is to promote and strengthen the quality of research in the field of science, engineering and education.

The scope of IJCRSEE is deliberately broad in terms of both topics covered and disciplinary prospects. Topics of interests are aimed at the promotion of the studies that further our understanding of learning in pre-primary, primary, high school, college, university, adult education and improvement of educational processes and outcomes. IJCRSEE seeks to promote international cognitive research by publishing findings relevant to the needs of scholarly community and others interested in education.

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Each submitted manuscript is evaluated on the following basis: the originality of its contribution to the field of scholarly publishing, the soundness of its theory and methodology, the coherence of its analysis, its availability to readers (grammar and style). Normal turn-around time for the evaluation of manuscripts is one to two months from the date of receipt.

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Manuscripts must be submitted online. Electronic submission reduces the editorial processing and reviewing time. As part of the submission process, authors are required to check off their submission compliance with all of the following items, and submissions may be returned to authors who do not adhere to the following guidelines:

The submission has not been previously published or presented to another journal for consideration (or an explanation has been provided in Comments to the Editor).

The submission file is in OpenOffice, Microsoft Word, RTF, or WordPerfect document file format.

Where available, URLs for the references have been provided.

The text is single-spaced; uses a 12-point font; employs italics, rather than underlining (except with URL addresses); and all illustrations, figures, and tables are placed within the text at the appropriate points, rather than at the end.

The text adheres to the stylistic and bibliographic requirements outlined in the Author Guidelines, which can be found in the section *About the Journal*.

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Based on the reviewers' comments the Chief Editor makes a decision to:

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An acceptance letter is sent to the author and the final manuscript is forwarded to production. Sometimes, the authors are requested to revise in accordance with reviewers' comments and submit the updated version or their manuscript to the Chief Editor. The time for review can be set to 2-8 weeks depending on the discipline and type of additional data, information or argument required. The authors are requested to make substantial revisions to their manuscripts and resubmit for a new evaluation. A rejection letter is sent to the author and the manuscript is archived. Reviewers might be informed about the decision.

After review a manuscript goes to the Copy Editor who will correct the manuscript concerning the correct referencing system, confirmation with the journal style and layout. When Copy Editor finishes his/her work they send manuscripts to the Layout editor.

Layout Editor is responsible for structuring the original manuscript, including figures and tables, into an article, activating necessary links and preparing the manuscript in the various formats, in our case PDF and HTML format. When Layout Editor finishes his/her job they send manuscripts to Proof Editor.

Proof Editor confirms that the manuscript has gone through all the stages and can be published.

This issue has 16 articles (12 original research and 4 studies and article). Our future plan is to increase the number of quality research papers from all fields of science, engineering and education. The editors seek to publish articles from a wide variety of academic disciplines and substantive fields; they are looking forward to substantial improvement of educational processes and outcomes.

Editor in Chief  
Dr. Lazar Stošić

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## GENDER-BASED DIFFERENCES IN SCHOOL-AGED CHILDREN'S DIVERGENT THINKING

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**Abstract.** This study examines whether the shortage of females in science and engineering possible gender-based differences in school-aged children's divergent thinking. Divergent thinking is a direct measure of creativity and an important characteristic in science and engineering. A survey instrument designed to measure divergent thinking was administered to 8<sup>th</sup> and 11<sup>th</sup> graders in a mid-western United States school district. Results showed that there were no difference between girls and boys on measures of divergent thinking: fluency, flexibility, and originality. These results indicate little reason as to why participation in science and engineering is male dominated, and support the notion that additional exposure to science and engineering through divergent-thinking activities will provide girls with the self-knowledge that they are capable of solving open-ended problems and engineering tasks.

**Keywords:** *Divergent thinking, Gender, Creativity, Science and engineering, Wallach and Kogan Creativity Test (WKCT)*

### 1. INTRODUCTION

The topic of this paper the shortage of females in science and engineering is linked to possible gender-based differences in school-aged children's divergent thinking. Creativity is associated with the highest levels of achievement in many fields, and certainly this is true in science and engineering. New systems, tools, processes, and equipment are the concrete result of creative acts (Tornkvist, 1998). In science and engineering, creativity can result in new predictive theories, new materials, more efficient energy sources, and safer products. The list is endless.

Today the shortage of skilled workers in science and engineering makes it imperative that young students from all segments of our diverse society, particularly those who are

currently least engaged, be attracted into these fields. During this time of significant shortage, women are underrepresented in science and engineering, and constitute a large untapped resource that has the potential to ease the urgent need for skilled.

History reflects a gender difference in significant creative accomplishments. There have been far more accomplishments, particularly at the highest level, by males in science, literature, arts, music, and technical development than females (Eysenck, 1995). Researchers have determined factors that influence creativity but the inconclusive nature of the current collection of research emphasizes the fact that more research is needed to understand gender differences in creativity.

Divergent thinking is defined as an idea-generating process wherein an individual is faced with problems or questions for which there is not just one answer (Guilford, 1950; Runco, Dow, Smith, 2006).

The majority of creativity tests divergent thinking, a key component of creativity (Clapham, 2004). Tests of divergent thinking evaluate the test taker's quality and quantity of creative ideas.

The Wallach and Kogan Creativity Test (WKCT) is one of the most widely used divergent thinking tests (Cheung, Lau, Chan, Wu, 2004). The WKCT has been in use over many decades, and researchers within the field of creativity have recognized and accept this test as generally reliable and valid. The WKCT is thought to effectively test abilities attributed to creative persons. The WKCT has been noted as cross-culturally fair in the measurement of divergent thinking because of its use of common daily objects familiar to most people.

Society has a general idea of gender differences in educational trends, work, and cognitive functioning and an awareness of variations in performance, annual salary, and general aptitudes. However, little is known about gender differences in creativity and original

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thinking. Research in these areas has developed over the years but is still fairly limited with respect to gender.

Today's homogeneous male engineering teams may no longer the increasingly diverse needs of the customers (Ihsen, 2005). The lack of diversity and the issue of women in engineering holds more and more political and economic relevance worldwide. A diverse workforce blending genders, cultures, and ages has the advantage of representing a wider customer base in order to translate customer requirements into new and useful products.

Women comprise approximately 50% of the population, yet according to *Science and Engineering Indicators* (2014), women held only 28% of non-academic science and engineering occupations in 2010. DeBartolo and Bailey (2007) point out that women comprise fewer than 20% of engineering majors and stress that it is essential for our nation's high-tech industries to increase the diversity of engineering graduates. As business leaders and policy-makers seek to address talent shortages, it is becoming increasingly urgent to close this gap and leverage the talents of both men and women.

## 2. MATERIALS AND METHODS

The survey instrument study is based on the Wallach and Kogan Creativity Test (WKCT), and examines divergent thinking characteristics in the study's participants. The general instructions for administering these tests were based upon instructions provided by Wallach and Kogan (1965).

This research questioned whether there are gender differences in the solution of creativity tasks with respect to fluency of responses, flexibility of responses, and originality of responses. Quantitative analysis there are gender differences in divergent thinking among 8<sup>th</sup> and 11<sup>th</sup> grade students. The researcher used a framework developed by Wallach and Kogan (1965) to measure divergent thinking within the sample. The instrument was comprised of three sections: uses, similarities, and instances. Each of the three sections contained three questions.

The WKCT is available in both verbal and figural components (Wallach and Kogan (1965); this research implemented the verbal questions.

Responses for each of the three sections were measured for originality (an atypical or novel response), fluency (total number

of responses), and flexibility (the ease with which mindset changes).

Measures of fluency, flexibility, and originality were applied in scoring the WKCT questions. Fluency is defined as the total number of responses given by a participant to a particular item. The participant's responses were totaled, which became the participant's fluency score for a particular question.

Flexibility is the number of categories into which the responses could be grouped. As a flexibility scoring example, if a participant is asked to name things with wheels and the responses are a car, a truck, a bike, and your mind, the participant would get a flexibility score of two points. One point is awarded for the response in the category of transportation and the other point for the non-transportation response of "your mind." Originality or uniqueness can be defined as one's capacity to think independently or be inventive. Based on this definition, an answer is dubbed original as determined by the three judges. As an example, a participant may all the ways in which an orange can be used. A rare response like "as ammo for a slingshot or catapult" would receive a higher originality score than a common response like "to eat." Again, an average of the judges' scores was calculated to obtain the participant's originality score.

Multiple judges were selected from various backgrounds, and their individual scores were averaged to reduce subjectivity and increase validity. Each of the three judges went through the same scoring process: the three scores were averaged to become the participant's flexibility score for that question.

The population for this study was 8<sup>th</sup> and 11<sup>th</sup> grade students from middle and high school classrooms within a mid-western United States school district. The average age of the 8<sup>th</sup> grade students who participated was 14.17 years and the average age of the 11<sup>th</sup> grade students was 16.92 years. (See Table 1.)

Table 1. *Gender and Grade Level of Participants*

	Male	Female
Grade 8	34	11
Grade 11	42	79
Total	77	90

### 3. RESULTS

Results were presented in two categories: The first was ANOVA (analysis of variance) and the second was mean scores.

Three one-way ANOVAs were computed to answer the research question “are there gender differences in fluency of responses, flexibility of responses, or originality of responses?” No gender differences these three measures: Between-subjects effects of fluency and gender, between-subjects effects of gender and flexibility, and between-subjects effects of gender and originality.

To further analyze the research question, separate ANOVAs were run based on the fluency, flexibility, and originality scores in each of the three sections of the survey (uses, similarities and instances). There were no significant relationships in the average scores between gender and fluency in the uses section, the similarities section, or the instances section of the survey.

The same procedure was used for flexibility scores. Three separate ANOVAs were computed for flexibility in each of the three survey sections (uses, similarities and instances). There were no significant relationships in the average flexibility scores between gender and flexibility in the uses section, the similarities section or the instances section of the survey.

Originality scores were also broken down into the three survey sections (uses, similarities, and instances) and ANOVAs computed. Again, there were no significant relationships in the average originality scores between gender and originality in the uses section, the similarities section, or the instances section.

Further analyses were conducted to determine if individual survey questions revealed a relationship between gender and fluency, flexibility, and originality scores. Separate ANOVAs were computed based on the fluency, flexibility, and originality of individual questions to test the effect of gender. After running separate ANOVAs for fluency of each question, results showed there is a relationship between gender and fluency on the question “name all the uses you can think of for an orange.” The females had a higher mean score (7.2556) than did the males (6.2468). The analyses determined that there were no effects between flexibility of a particular question and gender.

ANOVAs were conducted for originality scores for each survey question to determine if

a relationship exists between originality on an individual question and gender. The analyses revealed a relationship between originality and gender for the question “uses of a brick,” for which males provided more original responses than females.

The remainder of this section presents the second category of findings: mean scores. Mean scores were calculated for each of the survey’s measures (fluency, flexibility, and originality), and those measures were further broken down by each of the survey’s sections (uses, similarities, and instances). Overall survey scores, when broken down by grade level and gender, showed that fluency and flexibility increased from 8th grade to 11th grade for both males and females, while the mean originality score in 11th grade students was less than that of 8th grade students. Fluency is higher among 8th grade females than 8th grade males; this is reversed in the 11th grade, where males are more fluent than females.

To further describe the data, fluency has been broken down by the three survey sections (uses, similarities, and instances). In the uses category, both males and females increased their fluency from 8<sup>th</sup> to 11<sup>th</sup> grade. Males showed a larger increase (7.20 to 8.46) than females (8.00 to 8.33). Males in 11<sup>th</sup> grade scored higher than females, whereas for 8<sup>th</sup> grade the opposite is true, so females scored higher than males. Overall in the similarities category, females (5.97 to 6.00) scored higher than males (5.18 to 5.70). Eighth grade females (5.97) had a higher mean score than 11<sup>th</sup> grade males (5.7). In the instances category for there is little difference in the mean score between 8<sup>th</sup> grade females (10.61) and males (10.67). The same is true for the 11<sup>th</sup> grade females (10.54) and males (10.70).

Flexibility has also been broken down by the three survey sections (uses, similarities, and instances). Flexibility scores in the uses section reported that 8<sup>th</sup> grade females (2.85) had a higher mean score than did 8<sup>th</sup> grade males (2.63); the opposite was true for 11<sup>th</sup> graders. In the similarities section, the flexibility scores were slightly higher among females at the 11<sup>th</sup> grade level than females at the 8<sup>th</sup> grade level. The instances section showed very little difference between 11<sup>th</sup> grade females (2.85) and 11<sup>th</sup> grade males (2.86); whereas in the 8<sup>th</sup> grade, females (2.96) scored higher than 8<sup>th</sup> grade males (2.72).

Originality has also been broken down according to the three survey sections (uses, similarities, and instances). Originality scores in the uses section recorded 8<sup>th</sup> grade females



(2.53) had a higher mean score than 8<sup>th</sup> grade males (2.16), where the opposite was true in 11<sup>th</sup> grade when males (2.19) had a higher mean score than females (2.01). In the similarities section, 8<sup>th</sup> grade females (2.25) scored higher than did 8<sup>th</sup> grade males (1.93). The 11<sup>th</sup> grade originality scores in the similarities section reflected only a small difference between male (1.90) and female (1.86) mean scores. In the instances section, 8<sup>th</sup> grade females (2.40) scored higher than 8<sup>th</sup> grade males (2.27); there was little difference between males (2.04) and females (2.03) in the 11<sup>th</sup> grade.

#### 4. DISCUSSIONS

Students in 8th and 11th grade from a mid-western school district were surveyed to examine whether the shortage of females in science and engineering is linked to possible gender-based differences in school-aged children's divergent thinking.

Based on the results of this research, the most important finding of this study is that there is no difference between girls and boys on the three measures of divergent thinking (fluency, flexibility, and originality).

Studies of gender and divergent thinking have provided mixed results. Klausmeier and Wiersma (1964) found gender to be of major influence on divergent thinking tests. The results of their research on 320 fifth and sixth graders showed that the mean divergent thinking test scores for girls were higher than for boys. Reese et al. (2001) found negligible results in establishing a connection between gender and divergent thinking after studying 400 adults ranging in age from 17 and older. Thomas and Berk (1981) that gender differences were predictive in their study on the effects of school environment on the development of creativity.

This paper's findings contradict Klausmeier and Wiersma (1964) study of 320 fifth and seventh graders of high IQ that revealed girls generally scored higher on tests of divergent thinking. Dudek et al. (1993) tested 1,445 children from grades 5 and 6, using the Torrance Tests of Creative Thinking (TTCT) in agreement with Klausmeier and Wiersma's findings; girls in general scored higher than males on tests of divergent thinking. Another study in Hong Kong that used the WKCT found that boys had higher fluency scores (Chan et al., 2000-2001). Overall, Linn and

Hyde (1989) may have been correct in stating that gender differences are not general but specific to situational and cultural frameworks.

It is important to note that the accuracy of measurements of creativity and the divergent thinking process, even after years of research, is still open to differing opinions. The tests reviewed above are still scrutinized. Many critics propose that these tests have nothing in place to account for the many factors that cause variation within a person's creative production, nor for the variation within and between tests of creativity. They also question whether domain-specific questions impact the measurement of creativity (Brown, 1990).

#### 5. CONCLUSIONS

The major finding that came forth from this body of research is that there are no gender differences in divergent thinking. These results indicate little reason as to why participation in science and engineering is male dominated. It should be of key concern for science and engineering educators to continue to focus professional development and curriculum on attracting all potential talent. As educators become more informed as to the diverse jobs of today's scientists and engineers they will be better equipped to develop engaging curriculum.

In view of the fact that women are less likely than men to enroll in engineering related courses, this finding supports the notion that additional exposure to science and engineering through divergent-thinking activities will provide girls with the self-knowledge that they are capable of solving open-ended problems and engineering tasks.

In addition to providing more opportunities in order to attract a more diverse population, it would be beneficial for science and engineering curriculum to stress non-technical competencies, such as creativity skills and communication skills (Linn and Hyde (1989).

Stereotypes that girls do not have the divergent thinking skills required in science and engineering professions are not supported by the findings in this paper. During a visit with my high school guidance I was informed about a trip to the local cosmetology school for all the girls. This gender-based stereotype led some of my girlfriends to select cosmetology training without hearing other options. The good thing is they got an education. The

bad thing is that stereotypes set their course for life. Educators, guidance counselors and principals must know that creativity (divergent thinking) is not gender specific, and should not set artificial limits to girl's opportunities as future scientists and engineers.

### Conflict of interests

Author declares no conflict of interest.

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# THE CONCEPTUAL AND SYSTEMATIC SETTING OF THE PRACTICAL TEACHING IN THE REPUBLIC OF MACEDONIA (MODEL AND EXPERIENCES)

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**Abstract.** Improving the quality of the practical teaching in recent years has gained greater significance among all the included parties of all the levels in the educational process. Consequently, this issue has been approached from several aspects in regards to the constitution of the conceptual, systematic, structural, and content physiognomy in the organization and conduct of the process of practical teaching. The successiveness in setting the research and its complete theoretical foundation starts with setting up a model for practical teaching, in which all the relative factors from the three educational subsystems simultaneously and actively help to develop it. This initiation is completed through the provision of educational support, and realization with a high level of activity, all in all accompanied by a continuous follow-up of the model. The action character of the research represents continual movement in the direction of changes, additions, revisions, and expansions, approached through analysis of the acquired knowledge, developed competences, and relevant viewpoints of the included interested parties. Due to the universality of the basic pedagogical concept for practical teaching, which is applied in this research, one of the ideas that the researchers had been for it to become a generator, i.e. a specific example for support of practical teaching in higher education through the development of various profiles. It primarily refers to that category of students who in the future will choose whether they want to work as kindergarten teachers, primary or secondary school teachers, or school pedagogues, in different levels of education.

**Keywords:** *Practical teaching, Conceptual setting.*

## 1. INTRODUCTION

Improving the quality of teaching in higher education is an existing issue that can be viewed through several phases. The specific teaching process that is analyzed was introduced after the European Credit Transfer System, and it implies a great degree of active student participation in the realization of the teaching. Thus it can be stated that since then the efficiency and quality of the teaching have been significantly enhanced, in addition to student activity regarding the practical teaching. There are still more questions that are left open, being of universal character, just as teaching itself is open. Considering the profession of a kindergarten teacher, a primary or secondary school teacher, and a school pedagogue, according to the European Commission (2009a), it is of high priority to have gained practical teaching experience, which plays an important role in the responsibility and preparation for the direct realization of the educational work. The recommendations of the European Commission are directed towards the idea that practical teaching should start from the very beginning of the initial education of the future kindergarten teachers, primary or secondary school teachers, and school pedagogues, especially through observation. Practical teaching would be more effective only when the students have received concrete tasks that they should focus on.

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### **• Review of the organization of student practical teaching at the Faculties of Teaching**

Up until the Law for Higher Education was brought in 2010, at the Faculties of Teaching in R. Macedonia<sup>1</sup> there were realized different models in regards to the organization, realization, the dynamics of time, and program settings. Their realization is directly influenced by the accredited study programs.

With the Law for Higher Education of 2010, in Article 14 of the Law for Amending the Law for Higher Education, it is stated that the student is obliged in every study year to attend practical teaching classes, which must not be shorter than 30 days, hence being one of the conditions for attending the following academic year. The manner and conditions of organizing the practical teaching classes are given by the Sector Minister.

According to the Rulebook for the Manner and Conditions of Organizing Practical Teaching Classes for Students, there has been stated the setting of the practical teaching, wherein the institution of higher education should provide the conditions for collaboration with the appropriate partners for ordering such teaching.

The practical teaching must not last less than one class, or more than eight classes a day. According to Article 4 of the Rulebook, during the realization of the practical teaching, the student must be under the guidance of a mentor in an institution of higher education, who is responsible for the successful realization of the practical teaching classes. Additionally, in accordance with the Rulebook, the student is obliged to lead a diary of day-by-day activities during the realization of the practical teaching classes.

The consistency in the implementation of the new law regulative regarding the planning, programming, and execution of the practical teaching in higher education starts with setting up a new, contemporary model, which is initiated from the governmental and non-governmental sector, with the inclusion of experts-representatives of all the Faculties of Teaching in the higher education in R. Macedonia.

<sup>1</sup> "Ss. Cyril and Methodius" University, Faculty of Philosophy, Institute of Pedagogy (Skopje); "St. Kliment Ohridski" Faculty of Pedagogy (Skopje); "St. Kliment Ohridski" University, Faculty of Pedagogy (Bitola); "Goce Delcev" University, Faculty of Educational Sciences (Stip); and the State University, Faculty of Philosophy, Study Program of Pedagogy (Tetovo).

### **• A contemporary model of practical teaching at the Faculties of Teaching**

The structure of such a system includes the vertical and horizontal inter-institutional cooperation, the mechanisms for development and establishment of standards for practical work, the development of standards for educational programs and training sessions, as well as the establishment of a system of accreditation and certification of programs, institutions and professional qualifications.

The application of the contemporary ways of realization of practical teaching, in which the students are continuously involved, is represented through a high level of activity on their part. Consequently, this positively reflects on the quality of their knowledge, the development of pedagogical competences, their being present in classes, while simultaneously presenting a possible way for overcoming part of the problems that arise when studying according to the European Credit Transfer System, which has been envisioned as quite an effective way of studying.

It is understandable that the importance of the theoretical knowledge is not marginalized, but it asks for more enabling of the requirements of the contemporary concepts in higher education. In the viewpoints of some, the practical teaching classes should take up even 50% of the total number of lessons. Yet it should be noted that there have been movements and changes in this direction regarding the Law for Higher Education, with which the practical teaching classes are becoming a mandatory element in all the years of studying.

The system interventions of more recent times in the field of education have resulted in conceptualizing a contemporary model for carrying out student practical teaching. Such an analysis has created the need to publish "Guidelines for Student Practical Teaching at the Faculties of Teaching" (OBSE Mission in Skopje, 2013, pp. 4-6).

The general aim of practical teaching is to direct the students and make them independent in regards to the active participation in the educational process. The modeling has been differentiated through three phases, concretized through a series of successive tasks. In the first phase, the students are introduced to the educational process, which is followed by the phase of immediate involvement as students are getting prepared for independent realization, so that in the phase of independent realization of activities, it is expected from the students to have developed skills and abilities

for independent realization of the profession of a kindergarten teacher, a primary or secondary school teacher, or a school pedagogue, so as to acquire professional self-confidence.

In the structuring of such a set model of practical teaching, the responsibilities and tasks of all the involved persons in the whole process are precisely determined. The entire process of practical teaching is supplemented by formative and summative evaluation by the assigned mentors (kindergarten teachers, primary or secondary school teachers, or school pedagogues), as well as by the assigned mentors of the institution of higher education, in addition to self-evaluation of the students themselves, through a developed methodological apparatus.

The mentors of the institution of higher education are obliged to prepare Programs for Practical Teaching for every study year, which is further given to the “mentor” institutions and students. In the process of realization of the practical teaching, the student continuously fills in the methodological apparatus (evidence sheets, observation protocols, models of operational preparations, evaluations sheets, and self-evaluation sheets), and writes narrative reports. On the basis of the accumulated instruments, the student then prepares a diary. The process of executing the practical teaching is simultaneously reported by the mentors and the involved educational institutions. In the end, the whole process is under the jurisdiction of the mentor from an institution of higher education, who in the final phase evaluates the students’ practical teaching, including the opinions of the mentors- practitioners.

The successfully realized practical teaching class, having been confirmed as such by the professor-mentor, is a prerequisite for the student to attend classes in the following semester.

The suggested concept for the realization of the practical teaching has consistently led towards building relevant sets of pedagogical competences. This leads to the idea that after the implementation of the contemporary model of practical teaching, the results will be quality knowledge and a system of developing pedagogical competences for all the involved persons in the process.

#### **• Involved partners in the process of executing the practical teaching**

The efficiency in setting up, organizing, and realizing the practical teaching according to the suggested model is also noticeable

through the inter-institutional approach, i.e. in all the stages, experts from the educational sphere are included (comprising the governmental and non-governmental sector). Respecting the contemporary tendencies in such management is reflected through the holistic approach of acting, on the part of the relevant state institutions (the Ministry of Education and Science – State Inspectorate, Bureau for Development of the Education in R. Macedonia), as well as the professors from the institutions of higher education, who have a long tradition in the education of the future kindergarten teachers, primary or secondary school teachers or school pedagogues, and practitioners, supported by non-governmental sector, or more precisely by the Department for Education through the OBSE Mission in Skopje.

In the process of developing the model for practical teaching, directed towards the students at the Faculties of Teaching, the experts have analyzed the states and challenges regarding this issue. Consequently, their team work has resulted in differentiating eight key areas of action: momentary states; challenges and perspectives in the process of executing the practical teaching and recommendations; goals of the practical teaching; responsibilities and tasks of the students when realizing the practical teaching; the role, responsibilities, and tasks of the mentor-kindergarten teacher/primary or secondary school teacher/school pedagogue and the mentor-professor<sup>2</sup>; evaluation of the realized activities of the student in the process of the practical teaching; and required documents for the process of executing the practical teaching.

Providing appropriate educational support simultaneously influences the strengthening of the pedagogical competences of the mentors from practice, and the developing of the didactic competences of the students, envisioned as moving towards the improvement of teaching in general. Programming the model

<sup>2</sup> In the context of executing the practical teaching, on the one hand, the mentor-kindergarten teacher/primary or secondary school teacher/school pedagogue is in fact a kindergarten teacher/primary or secondary school teacher/school pedagogue, employed full-time at the school (educational institution), who for the duration of their working hours observes and mentors the students from the Faculties of Teaching (or the Faculties of Philosophy), in collaboration with the relevant institutions of higher education. On the other hand, the mentor-professor is a professor who is employed full-time at an institution of higher education, and is responsible for following the student practical teaching (Ibid, pp. 5-6).

of practical teaching is the first phase of the educational support, followed by trainings and workshops held by the professor-mentors, and organized in two cycles: the first cycle covers the mentor-practicians, who in the midst of this process have the role of co-mentors, while the second cycle covers the students who have had the program presented to them, and as a logical follow-up, all the obligations and tasks that refer to the practical teaching.

If such a model of practical teaching is analyzed as premises, then it is inevitable to come to the conclusion that the characteristic of proactivity in teaching occurs as a significant factor for improvement of the quality of the teaching, and development of the pedagogical competences, especially since this “educational scenario” takes places in the sphere of the immediate practical work.

The process of setting standards for higher titles/positions of the teachers (primary or secondary school mentor, and teacher advisor) is an advantage for the initiative for the preparation of the “Catalogue of the Basic Professional Competences of Teachers.”

The determinants that represent the starting point in the preparation of the Catalogue refer to:

1. Cataloging the generic competences;
2. Covering the overall professional engagement;
3. Defining the competences for contemporary teaching;
4. Respecting the educational context in R. Macedonia.

The promotion of the new model of practical teaching (which presents a central theme in this research) and the Proposed Catalogue of the Basic Professional Competences of Teachers represent initiatives for intervening in the Law for Primary and Secondary Education, specifically in the section on professional and career development of the teachers.

This study also tends to give its own contribution and scientific support to the teachers, who take on the role of co-mentors with the students, according to the model of practical teaching, as a prerequisite in setting the standards for attaining higher titles of the teachers.

Employing contemporary methods of cooperation in which the students are included as equal partners requires a high degree of their participation, which positively reflects on the quality of knowledge and abilities, yet at the same time represents a possible way to promote the concept of “learning by doing.”

## 2. MATERIALS AND METHODS

Subject of this research is the conceptual and systematic setting of the practical teaching in R. Macedonia. The research itself has the character of an empiric and action research, which is directed towards executing a contemporary Model of Student Practical Teaching at the Faculties of Teaching. The realization of the model includes individuals from several educational subsystems. Through surveying the views and educational needs of all those affected, the research subsequently gains empirical character. But considering that the received results, treated as “exit points” of the practical process, are incorporated in the improvement of the quality of the Model, the research hence gains action character.

**The goal** of the research is to examine the views and educational needs of the individuals that are directly involved in the process of realizing the practical teaching with the students, in the function of improvement of the quality of the suggested Model.

The character, layering, and extensiveness of such a research incorporate the realization of several tasks, which are grouped according to the proposed **action steps** that have been being taken during the research: participation in the formation of a Model of Practical Teaching; preliminary examination of the Model in practice; changes according to the preliminary realization; organization of training sessions and seminars for the persons involved; realization of the Model of Practical Teaching; summative evaluation through analyzing the views and educational needs of the co-mentors-kindergarten teachers/primary or secondary school teachers/school pedagogues and students; and integrating the received results in the direction of improving the quality of the model.

The goal of the research is concretized through the following **tasks**:

1. Examining the views, thoughts, and educational needs of the teachers co-mentors regarding the model of practical teaching;
2. Examining the views, thoughts, and educational needs of the kindergarten teachers co-mentors regarding the model of practical teaching;
3. Examining the views, thoughts, and educational needs of the school pedagogues co-mentors regarding the model of practical teaching;
4. Examining the views, thoughts, and educational needs of the students from the Institute of Pedagogy (Faculty of Philosophy

- Skopje) regarding the model of practical teaching;

5. Revising and reconstructing the model of practical teaching.

### Research Hypotheses

#### • General Hypothesis

The conceptual and systematic setting of the model of practical teaching positively influences the views and educational needs of the all involved partners in the process of realizing the student practical teaching.

#### • Separate Hypotheses

1. The teachers co-mentors positively assess the effects from applying the model of practical teaching;

2. The kindergarten teachers co-mentors positively assess the effects from applying the model of practical teaching;

3. The school pedagogues co-mentors positively assess the effects from applying the model of practical teaching;

4. The proactive manner of practical teaching, through using an appropriate program and methodological apparatus, positively influence the views and educational needs of the students;

5. There is a need to revise and reconstruct the model of practical teaching.

### Research Methods, Techniques and Instruments

This research employed several methods, which helped to provide quality scientific conclusions, i.e. analysis, synthesis, description, induction, and generalization.

In order to obtain relevant data, the following techniques and instruments were used:

**Research Techniques:** Analysis of pedagogical documentation, and surveying

#### Research Instruments:

1. Questionnaire for examining the views and thoughts of the teachers regarding the model of realization of the mandatory pedagogical practice (for the academic 2013/2014)(SE/QT)<sup>3</sup>

2. Questionnaire for examining the views and thoughts of the kindergarten teachers regarding the model of realization of the mandatory pedagogical practice (for the

academic 2013/2014) (SE/QKT)<sup>4</sup>

3. Questionnaire for examining the views and thoughts of the school pedagogues regarding the model of realization of the mandatory pedagogical practice (for the academic 2013/2014) (SE/QSP)<sup>5</sup>

4. Questionnaire for examining the views and thoughts of the students from the Institute of Pedagogy regarding the model of realization of the mandatory pedagogical practice (SE/QS)<sup>6</sup>

### Research Sample

In this research, several samples are covered:<sup>7</sup>

1. A sample of teachers co-mentors from primary schools in the city of Skopje (N=33);

2. A sample of kindergarten teachers from primary schools in the city of Skopje (N=19);

3. A sample of school pedagogues from primary schools in the city of Skopje (N=13);

4. A sample of students from the 4 study years from the Institute of Pedagogy (Faculty of Philosophy, "Ss. Cyril and Methodius" University – Skopje) (N=97).

## 3. RESULTS AND DISCUSSIONS

On the basis of the analysis of the data received from the surveyed teachers and kindergarten teachers mentors, it can be stated that for the duration of the practical teaching there was continuous communication in the direction of educational support of the students (58,82%), as illustrated in Table 1.

Table 1. Communication between the participants: kindergarten teacher/primary or secondary school teacher-mentor-students

QUESTION 1: During the realization of the practical teaching, was there constant communication between the participants: kindergarten teacher/primary or secondary school teacher-mentor-students?		
Statement	f	%
A) Constantly	30	58.82
B) Rarely	9	37.26
C) Never	2	3.92
N	51	100

The results of the qualitative analysis

4 Summative Evaluation – Questionnaire for Kindergarten Teachers Co-Mentors

5 Summative Evaluation – Questionnaire for School Pedagogues Co-Mentors

6 Summative Evaluation – Questionnaire for Students Co-Mentors

7 The persons in all the subsamples have participated in training sessions and workshops for the Model of Practical Teaching with the students.

3 Summative Evaluation – Questionnaire for Teachers Co-Mentors



are an advantage point for the positive experiences from sharing the practical experiences in the process of the preparation of activities and classes, for facing different teaching situations with the students, and for searching for different approaches and solutions in teaching. Such an approach enables student preparation for applying contemporary teaching techniques and methods in curricular and extra-curricular activities, for the possibility of linking the theory and practice, in the recognition, and in the planning of individual work with children/pupils who have special educational needs, as well as in the applicative activities of a different type. The effects of such organized practical teaching are visible even through the fact that the students have the opportunity to fulfill direct work meetings with the principal, and to get a close look at the programming and realizing of the other types of teaching as well, especially regarding additional and extra-curricular teaching.

With this suggested model, the practitioners co-mentors specifically focus on the possibility of the students to immediately participate in parent meetings, staff meetings, and meetings with representatives of non-governmental organizations and the local community.

There is also a separate part in the research in which the views of the co-mentors, primary/secondary school teachers and kindergarten teachers are analyzed, especially regarding the degree of their participation in the practical teaching with the students, as part of their own professional development. Using an evaluation scale (1-5), 35.84% of those surveyed give a grade of 3, 26.41% give a grade of 4, while 28.30% give the highest grade. Such information supports the statement that there exists the need for interventional measures in the legal decisions that concern the professional and career development of teachers.

For the purpose of more efficient “mentoring”, and as a result of the educational support that they gain through the Model (through workshops and training sessions), there is confirmation from the results illustrated in Table 2, according to which the highest spot is taken by the methodological instruments, which further help the co-mentor teachers to provide a systematic follow-up and evaluation of the work and activities of the students. Aside from this data, regarding the materials that they receive with the program for practical teaching, the school pedagogues co-mentors rank their practical work with the students very highly.

Table 2. The purpose of the materials that the teachers receive during the practical teaching

QUESTION 2: What is the purpose of the materials that the teachers receive during the practical teaching?	
Ranking	Statement
1	Preparation for practical teaching with students
2	Your realization of activities with students
3	Your practical work with students
4	Developing professional competences for teacher/mentor
5	Systematic follow-up and evaluation of student activities
N	43

From the received data it can be stated that the training sessions and workshops (Ibid), which are conceptually set up following this Model, are unique in their character and content, and refer to the strengthening of the professional competences of the co-mentors teachers for practical work with students. It is a notable fact that 90% of those surveyed have stated that they have the need for educational support in the form of additional trainings and materials, all for the purpose of strengthening the pedagogical competences of this field. As regards this question, the results of the surveyed school pedagogues’ mentors are nearly identical (83.30%).

They also emphasize the need for more frequent dynamics of the work meetings with the professors co-mentors from the institutions of higher education, with the goal of revising the program of practical work with students, receiving additional materials (instruments) for work with students, as well as suggestions for decreasing the number of students in the work groups (for the purpose of improving the quality of the practical teaching). The suggestions that the co-mentors teachers give in addition, as to how the practical teaching should be realized in the future, are affirmative (in regards to their own experiences).

In the conclusions in this part of the research, there is confirmation about the first and second separate hypothesis according to which the teachers’ co-mentors positively assess the effects of the application of the model of practical teaching.

Due to the specific nature and character of the professional tasks of the school pedagogues in the educational institutions, the most frequent forms of work with students in the practical teaching are group work (39.13%), i.e. individual work (34.78%), while individualized teaching covers only 8.70% (Table 3)

Table 3. The most common forms of work of the school pedagogue in the realization of the practical teaching with students

QUESTION 3: What are the most common forms of work of the school pedagogue in the realization of the practical teaching with students?		
Statement	f	%
A) Frontal	4	17.39%
B) Work in small groups	9	39.13%
C) Individual work	8	34.78%
D) Individualized	2	8.69%
N	23	100%

The inter-institutional cooperation suggested in the Model has also been confirmed through the received results, from the school pedagogues co-mentors in this study as a sub-sample through which the exceptionally high percentage (92.30%) of continuous communication and professional support in the relation between the school pedagogue-professor-student can be observed. This cooperation is noted in the mutual program conceptualization, as well as in the continual observation of the program documentation by the students, detected in the results with 53.84%, as the category of “always”, as opposed to the category of “never” (with 7.69%).

It should be taken into consideration that the systematic and conceptual setting of the model of practical teaching leads towards several exits, and the final “product” (expressed as a trained student with developed competences, recognizable in the labor market) will have a special place.

The received results yet once again confirm the third separate thesis, in which the school pedagogues’ co-mentors positively assess the effects of the application of the Model of practical teaching.

Examining the views and opinions of the students regarding the realization of the practical teaching, as linked to the views and comments as a sub-research sample, the starting point referred to the general statements that those surveyed in the research are somewhat mutually connected, and that aside from the contemporary approach in the conceptualization of the program based on the Model, there are still certain specifics in the realization itself.

Considering the fact that the research is of an action type, the received results in this study move in the direction of step-by-step changes that will reflect on the quality of the teaching, and the strengthening of the abilities and competences of the future school pedagogues, i.e. the kindergarten and primary/secondary school teachers.

Table 4. The degree of participation of the student in practical teaching (outside the Faculty teaching)

QUESTION 4: What is the degree of participation of the student in practical teaching (outside the Faculty teaching)?		
Grade	f	%
1	5	5.81
2	4	4.65
3	26	30.23
4	36	41.87
5	15	17.44
N	86	100

Forty-one point eighty-seven percentage of the students, having given their views on the possibility for practical training in the framework of this teaching, with a numerical grade from 1 to 5 (1 being the lowest, and 5 being the highest), have given the grade of 4 or 3 for it (41.87% or 30.23%, respectively) (Table 4 and Graph 2). If this is supplemented by the percentage of those who gave the grade of 1 (5.81%), it can be concluded that a largest part of the students actively participate in the practical teaching, outside the Faculty teaching).

By examining the views and opinions of the students, after the analysis of the results from questions 10, 12, and 13, from the data that arose it can be concluded that generally, the students positively assessed the practical teaching in the institutions of cooperation. The students suggested that through with the practical possibilities<sup>8</sup>, they are trained for a holistic approach in teaching, with expressed interaction and communication among all the involved person in the process, and through respecting their suggestions, which contributes to the development of their competences.

The given analysis, which has come from the initial views and thoughts of the surveyed students about the model of realization of practical teaching, leads towards confirming the fourth separate hypothesis, presenting the idea that the proactive way of practical work, through using an appropriate program and methodological apparatus, has a positive influence on the views and educational needs

<sup>8</sup> For example: through conversational and work meetings with the school pedagogues and the other members of the administrative staff (the principal and teachers); through the presence at staff meetings and the possibility of direct participation in all the types of teaching; through a direct approach to the complete pedagogical documentation; through an independent setting of the teaching and activities; through participation in staff meetings and parent meetings; through inclusion in project activities and communication with the other members of the local community.

of the students.

If the attention is turned towards the results received from the empirical part of the research, including the relevant results from those surveyed in the direction of the process of complete evaluation of the conceptual and systematic setting of the Model, it can be stated that there is a need for revising and reconstructing it, as confirmed by the fifth separate research hypothesis.

The final results, being analyzed cumulatively, move in the direction of confirming the general hypothesis in the research, which represents the idea that the conceptual and systematic setting of the Model of practical teaching has a positive influence on the views and educational needs of the involved persons in the process of realizing the practical teaching with the students.

#### 4. CONCLUSION

The final conclusion arises from the nature of the problem itself, and from the comprehensiveness of the conceptualization of the suggested model of practical teaching in higher education. The suggested concept for the realization of the practical teaching consistently leads towards building relevant sets of pedagogical competences, hence leading to the thought that after the implementation of the new model of contemporary teaching, that will result in quality knowledge and a system of developed pedagogical competences of the included persons in the process.

The conclusions from this study guide us towards the idea that in the future, there is a need to revise the conceptual setting of the practical teaching at every Faculty, in which "practical work" starts even from the first year at University. Consequently, this brings me to confirm to you that the highly-active ways of practical work, through their fragmented use or through their continuous and wholly didactic use, in the form of developed models, such as the case with this research, have a positive influence on the pedagogical competences and the quality of knowledge, especially in a multiplied format.

This study tends to give its own contribution and professional support to the teachers, who have the role of co-mentors with students, according to the model of practical work, as a prerequisite in the setting of the standards for gaining higher teacher titles.

In conclusion, as a significant exit point from this research, and keeping with the data

received in the section of this research that is "linked" to the students, there is the need for further research in depth on the quality of the practical teaching in higher education, and the views and opinions about the pedagogical competences, as educational needs of every student.

#### Conflict of interests

Authors declare no conflict of interest.

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# THE RELATIONSHIP BETWEEN THE INTENSITY AND THE EFFECTIVENESS OF THE PRESCHOOL CHILDREN IN JOINT MENTAL ACTIVITY

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**Abstract.** This article describes a study of the preschool children's communication with their mates in joint mental activity, one of the results of our study was the establishment a correlation between the intensity and effectiveness of the communication.

**Keywords:** *Joint mental activity, Preschool children, Intensity and effectiveness of communication.*

## 1. INTRODUCTION

In modern Russian science the amount of research devoted to the problem of the preschool children's communication in joint activity increases. The urgency of this problem is evident, because numerous studies, as well as the observations of the psychologists of the educational institutions, show an increasing lack of the communication of modern preschoolers, adults and mates, which ultimately leads to a number of negative consequences: lower rates of language development, cognitive processes, difficulties in the formation of the communicative skills, abilities and, in general, communicative competence, etc. (Гаврилушкина О. П., Малова А. А., Панкратова М. В. (2012); Filippova E. V., Pivnenko T. V, 2010; Kuznetsova O.O., 2013). The studies cover different aspects of the defined problem. Thus, E. O. Smirnova studied personal and behavioral characteristics of preschool children having difficulties in relationships with mates (Smirnova E.O., 2011). O. O. Kuznetsova described the characteristics of preschoolers' dialogue in joint activities, denoting the role of dialogue in the development of joint activities of the preschool

children (Kuznetsova O.O., 2013).

The results of the study by A. A. Zarechnaya ascertain the activity peculiarities of the communicative interaction of the senior preschool children in cooperative play with mates. This author compares the features of the interaction of preschool children with normal and arrested development, being focused on the roles of the communication in difficult, low-level cooperation, reflection, and the arbitrariness of the latter (Zarechnaya A. A. (2009). E. V. Filippova and T. V. Pivnenko describe features of gaming activities, sociometric status and problems of the formation of psychological boundaries of «I» of preschool children with difficulties in communication (Filippova E. V., Pivnenko T. V, 2010). I. V. Hohlacheva and E. O. Smirnova identified the relationship between the characteristics of the parental relationship and the difficulties in communicating with mates' preschoolers (Hohlacheva I. V., Smirnova E.O, 2010).

## 2. MATERIALS AND METHOD

Earlier we were also studied some features of the communication in preschoolers' joint mental activity (including the causes of the difficulties in communication of the preschoolers). The result of the study was the description of the features of the dialogue, which was considered by us as a form of the communication (question, call to action, post-treatment as mates to each other, the theme of cycles or the referral to the task or relationship, etc.), and as a form of thinking (cognitive activity of preschool children, etc.) (Pavlova T. V., 2011). In this article, we consider the analysis of the intensity and effectiveness of communication of preschool children in joint mental activity with their mates. We organized an experiment with a complex goal - to study

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the development of joint mental activity of the preschoolers. One of the objects of this study was to analyze the communication of preschool children using objective characteristics of communication, which were the intensity of communication (communication intensity factor by A. K. Belousova - Kio) and saturation of communication (communicative intensity coefficient by Tsukanova E. V. - R).

However, in general the question of the intensity and effectiveness of communication has important characteristics of communication that do not have one-valued correlations, according to most researchers. E. V. Tsukanova as the main factors determines the characteristics of communication in terms of joint mental activity, at first - communication, consisting in the direction, content, intensity of communication, secondly - personality, consisting of temperament, personality traits, characteristics of emotional and volitional etc. One of the most important indicators of communication in terms of joint mental activity E. V. Tsukanova considered communicative degree of saturation. To calculate this indicator a communicative saturation coefficient was developed by the author (Tsukanova E.V., 1985):

$$R = \frac{N}{t}, \text{ wherein}$$

R - factor of the the communicative saturation,

N - total number of mutual speech comments,

t - total time of the group work.

The communicative saturation is an objective characteristic of a joint communication in mental activity, which in its turn is not an indicator of the effectiveness of group interaction, but determines the nature of the communication and partly indicates the presence or absence of the difficulties in the communication.

A. K. Belousova developed the communication intensity factor, which is a measure of the effectiveness of communication in collaborative mental activity, in contrast to the saturation communicative factor by E. V. Tsukanova (A. K. Belousova, 2002). The basis of the intensity factor of the communication is quantitative indicators of the functions that are performed by participants choosing a role in solving the problem of thinking.

$$K_{uo} = \frac{T_p}{T_u}, \text{ wherein}$$

Kio - factor of intensity of the communication,

Tp - the sum of numerical values of the functions of each role in the dyad,

Ti - evaluation of single participants' performed all the roles and functions.

To solve a particular problem - studying the intensity and the effectiveness of the communication – the preschoolers of the older groups of the preschool educational institutions of the city of Rostov-on-Don were asked to choose a mate to solve puzzle jointly. Solving process was recorded on the tape, conducted a detailed observation of the interaction of preschoolers. The protocols, executed due to the tape records, were subjected to detailed analysis, including for calculating the abovementioned coefficient. Total 58 dyads were analyzed.

### 3. RESULT

Analysis of the data allowed to calculate the coefficient of the communicative saturation for each dyad and identified 4 groups of dyads in the expression of the communicative intensity coefficient (R): Group 1 - the lowest possible R; Group 2 - Low R; Group 3 - average R; Group 4 - High R. Analysis of the dyads showed the existence of differences in the expression of the essential characteristics of communication. So in groups with the highest coefficient of communicative saturation of questions and impulses to act far exceeds the number of those in the other groups. In groups with a low coefficient the cycles are more pronounced «message - response to it»; cycles with the subject theme of the communication, related tasks. It is significant that in the groups with the lowest possible coefficient of the communicative saturation to a greater extent than in other cycles are presented with a personal theme of the communication unrelated to the task and the process of its solutions, and aimed at the relationship. Thus it was found that dyads with a different coefficient of the communicative saturation there are various intensity characteristics of the communication. However, this factor does not allow us to talk about effective communication of preschool children in joint activities with mates.

We analyze the dyads for effective communication. There were allocated 5 groups with different intensity factor of the communication (Kio) that is an indicator of the effectiveness of the communication: group 1 - with the lowest possible Kio; group 2 - low Kio; 3 - with an average Kio; 4 - high Kio; 5 - with the highest Kio. It was found that in the dyads with different intensity factor of the communication the different types of relationships of the preschoolers are established (cooperation, rivalry, fight, etc.). For example in the type of relationship dyads «rivalry - struggle» the highest level of the intensity of the communication was observed. This can be explained by the fact that these types of dyadic relationships partners of communication due to no equilibrium or often conflict situation had to be more proactive in defending their interests and the desire to act in accordance with their own ideas of solving the puzzle.

The obtained results of the research will inevitably raise the question of the dependence of the intensity of the communication and effective communication in a joint intellectual activity of preschool children with their mates. To test the hypotheses about the relationship between the communication saturation coefficients, that is an indication of the effectiveness of the communication, and communication intensity factor correlation we carry out the analysis using Spearman correlation coefficient  $r_{xy}$ . Correlation analysis showed a positive correlation ( $r_{xy} = 0.467$ , at  $p = 0.0$ ). In this case we can say that the intensity of the communication related to the efficiency of the communication of the preschool children in mental activity together with their mates, i.e. with increasing intensity of preschoolers' communication in order to solve the problem with a mate the communication efficiency will also increase. This can be explained by the fact that the basis of the intensity factor of the communication are quantitative indicators functions that are performed by choosing a role in dealing with mental problems, and based on the coefficient of saturation - the total number of mutual speech comments and the work group. i.e. the more preschoolers' speech comments per unit of time, the more functions will be realized in the structure of the joint mental activity of the preschoolers.

#### 4. CONCLUSION

Thus characterizing the communication features of the preschool children with their

mates in a situation of joint intellectual activity it can be noted that the dyads with different coefficients of the communicative saturation and intensity of the communicative expression of various different communication characteristics (character issues, cycles, the communication topics, etc.) and the nature of the relationship are established. It was also discovered that the intensity and saturation communication ratios positively correlated. This means that an increase in the effectiveness of the preschoolers' communication, defined by the number of statements that demonstrate the preschooler's implementation of a particular function (or taking on a role in solving the problem) from the total number of statements entails an increase in the intensity of the communication, such as the ratio of total preschoolers' comments to unit of time, and vice versa. With this approach to the determination of the intensity and effectiveness of preschoolers' communication we can confirm (when checking the output on a statistical level) about their dependence in a situation of the preschoolers' joint mental activity with mates.

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Author declares no conflict of interest.

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# THE ROLE OF EDUCATION IN THE FORMATION OF VALUES AND VALUE ORIENTATIONS AMONG ADOLESCENTS

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**Abstract.** In this paper is discussed the concept of values and value orientations, as to the role of education in the process of their forming among adolescents from middle and late adolescence. Presented and discussed are the results of a larger research regarding the differences in values and value orientations in adolescents with different kind of education and: a) adolescents learning religious subjects and ethics b) adolescents learning ethics and c) adolescents learning neither religious subjects, nor ethics.

The findings obtained testify for the presence of differences in the system of values in adolescents with different educational type as regarding the following instrumental values: cooperation, honesty, determination, capability, assistance, clarity, generosity, logics and competing. There are also differences regarding the terminal values: an exciting life, peace in the world, self-respecting, peace of mind, equality, economic welfare, pleasure and social justice. As regarding to the examined life styles, differences are found between the examined groups of adolescents in the following value orientations: family, altruistic, utilitary, popular and individual, as to religious, hedonism and power.

**Keywords:** *Adolescents, Education, Values, Value orientations, Values preferred, Value profile.*

## 1. INTRODUCTION

Value orientations serve as a general indicator of the orientation of interests, needs, personal requirements, position in society and the level of spiritual development. The path and perspectives of development of a society depend on the values formed among adolescents today and their level of preparedness for the new changes in social relations. That's why the insight in the way of forming of values and

the profile of values of adolescent population can be of assistance for those who plan and realize the educational politics so as they can properly determine the goals of teaching and education and realize them successfully.

Values are an often example of exploring in different social sciences, a thing prescribed to their theoretical and practical contribution in interpreting and understanding of occurrences, as to a prognostic possibility deriving from their motivational embedding and relative stability (Pantic, 1995). They enable explaining and predicting of the behavior in individuals, getting insight in their value orientations and contribute for the expanding of the realizations for mechanisms of forming of values and effects they have on socialization. The insight in the way of forming of values and profile of value in adolescent population can be of assistance for those who plan and realize the educational politics so as they can properly determine the goals of teaching and education and realize them successfully. The data for value orientations in particular generations, gathered in different time periods enable bringing of conclusions for stability, respectively the changes in the profile of value in young, as to the influence of current social circumstances on individual value determinations (Joksimović and Janjetović, 2008).

The values are adopted through social learning, under the influence of different agents of socialization that consciously or intentionally, spontaneously contribute certain values to be accepted and adopted. When talking about forming of values in individual life, the family sets the foundation, although the influences on peers, and mass communication media also have significance. In regard to the adopting of socially preferred values, school is an agent of socialization that directly mediates between society and young people

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participating in the teaching-educational process. This is, certainly, if the goals of society are set clearly enough and the educational curriculum predicts and gives consistent and systematic influence of school on the values of the student (Jokcimić and Maksić, 2006).

The values and value orientation in the empirical research are most often used as synonyms because their differences can hardly be operationalized. However, such differences exist.

The values do the function of all kinds of selective social behavior: social action, ideology, attitudes and moral reasoning, comparing with others, as to justifying yourselves and others (Koković and Lazar, 2004). Parsons and Shils assume that values are an element of an accepted symbolic system serving as a criteria or standard for choosing between orientation alternatives, because of this, they are necessary element of social acting and define the way of choosing and the proper obligation of such acting (Parsons and Shils, 1962).

The definition of Kluckhohn emphasizes the explicit and implicit character of values typical for an individual or group: "Values aren't only in wishes, but quite more in needs, respectively they aren't only in what we wish for, but also in what we feel as right and proper to want for ourselves and others. In fact, values are abstract standards that overcome impulses of the moment and transient situations" (Kluckhohn, 1965). According to this, values represent certain standards, concepts, criteria and believes for the desired goals of human existence; individual and joint ways of behavior and social relations. Even authors define values as lasting or relatively lasting dispositions of the individual so as to notice, interpret and evaluate certain objects in a way seemingly desirable and according to such experience behave to them. (Rayk and Edkok, 1978, Serpel, 1978).

The famous explorer of values Rokeach (Rokeach, 1973) has identified two important functions of values. One of these functions represents the standards managing our behavior, and the other, called motivational, regards to the components expressing our tendency for acquiring values (for example, we tend to be honest and solidary). In this regard, the tendency for fulfilling represents a human need. The implied determinations show that values contain three important components: cognitive (value as a concept), affective (value as something desirable) and conative (value as criteria for selection). Such provisions have shown to be fruitful and suitable for sociological

exploring, because they place the values in the interpretive frame of the concept of social acting, representing the basis for understanding social dynamics (Matić, 1990).

Values are most commonly divided into instrumental and targeted (terminal). Instrumental values can relate either to morality or authority (validity). An example of morality would be: to be honest, and an example of authority would be: logical behavior. For targeted or terminal, values are considered to be those values that represent desired goals of human existence, respectively goals indicating the purpose of life or universal tendencies of all people (because of this all values are called targeted-existential). For instrumental (respectively values – remedies) are considered to be those values that can serve as "remedies" for fulfilling of targeted (terminal) values.

Value orientations, however, represent individual hierarchical system of values determining the orientation of a person or the selectiveness of her conduct. (Широких, 2007). Rot and Havelka define value orientations as general principles of behavior and acting regarding certain goals we strive to fulfill (Rot and Havelka, 1973; Kuzmanović (1995) assumes that value orientations are wide, less articulated system of beliefs, respectively relatively consistent and enough coherently directed to certain categories of the goals.

Value orientations in adolescents are gradually formed in the process of his or her socialization by reaching through of social information in the individual - psychological world of the adolescent. Forming of a system of value orientations is a process of person building and such system shows up to be a remedy for conducting of certain social goals. In modern conditions, the process of forming of value orientations in young generations takes place in the context of reforms happening in society. These changes not only lead to changes in economic relations, but also directly affect the spiritual climate and interpersonal relations (Sogolub, 2003).

The Psychologist Bitinas (1971), while analyzing the mechanisms of forming of value orientations explains the role of free education, as to the unchangeable social attitudes and beliefs. Internationalization refers to a process of transforming of social ideas as a specific experience of mankind in stimulating towards positive acts and restraining from negative. Hence, internationalization is not only adopting of social norms, but also establishing of those ideas as dominant and regulators

of human life. Social ideas are considered to be internationalized when they rule man. This way, the process of forming of value orientations is a process of transferring of objective values in subjective with meaning for a certain individual. A problem appears with forming of unconscious thriving forces of pro social conduct in the adolescent and an internal "brake" forbidding negative behavior. The concept of free education is built based on this and it doesn't perform constraining, but only under the condition unconscious internal regulators of conduct of the adolescent are formed.

The development of value orientations is a sign of maturity of the person, an indicator of the degree of socialization of the individual. The stabile and consistent structure of value orientations causes development of such features of personality such as: integrity, confidence, loyalty towards certain principles and ideals and active life position. Instability, however, creates inconsistency in behavior. Underdevelopment of value orientations is a sign of infantilism (Golub, 2009:54).

Thanks to their power to serve as an example and orientation, the disturbances and upturns in the system of values pull back large disruptions in total society and culture, but also vice versa. However, full compatibility and harmony between the values are almost impossible. If people agree in all values and if harmonic relations prevail, such harmony would turn in tediousness very fast.

## 2. MATERIALS AND METHODS

The problem subject of this research is if the kind of education affects the choice of values and value orientations in adolescents?

The research involves 370 adolescents males and female at ages in middle and late adolescence. Regarding the kind of educations involved are: a) high school students and such learning religious subjects and ethics during their education; b) high school students and such learning ethics during their education c) high school students and such learning neither religious subjects nor ethics during their educations.

The surveyed are high school students learning in Skopje in: the Macedonian Orthodox Theology School „St. Kliment Ohridski“, gymnasium „Nikola Karev“, gymnasium „Zdravko Cvetkovski“, high school for art „Lazar Lidenovski“, high school for physical

culture „Metodija Mitevski – Brico, as to all students from the University „St. Cyril and Methodius“, respectively the following faculties: Orthodox Theology Faculty, Philosophical Faculty, Pedagogical Faculty, Faculty of Architecture and Faculty of Physical education, sport and health.

The field part of the research is realized in the period from September until November 2013th year. A proper sample was used composed of high school students and students present in the preferred high schools and faculties during the time of delivering of the instruments. An ex-post facto procedure was used during the research, determining the types of dominant values and value orientations in adolescents depending if they learn religious subjects, ethics in their teaching-educational process or such are missing in their lectures.

Instruments: The value preferences are measured with the help of a modified version of Rokeach's Questionnaire of Values (Rokeach, 1973). The surveyors were demanded to rank according to the significance for them of 16 terminal values (life goals) and 16 instrumental values (ways of behavior). The terminal values are represented by the following categories: social reputation, exciting life, true friendship, peace in the world, self-respecting, harmonic family life, spiritual peace, equity, wisdom, economic welfare, true love, making endeavors to be better, safety for loved ones, pleasure, social justice and a world of wonderfulness. The instrumental values are represented by the following categories: ambitiousness, cooperation, self-control, independence, honesty, decisiveness, resourcefulness, capability, helping, purity, generosity, logics, consciousness, politeness, competing and tactfulness.

The value orientations in the surveyed are determined with using of scale of life styles constructed by Popadic (Popadić, 1998). This scale consists of ten life styles, and: family-sentimental, altruistic, cognizant, utilitarian, popularity, egoistical-individualistic, Promethean activism, hedonistic, religious-traditional and power oriented.

## 3. RESULTS

According to the results gained from the descriptive statistics we can see that there are life styles highly ranked by all groups of surveyors. These are as follows: family



orientation, individualistic orientation and Promethean activity. Religiosity, however, is most highly ranked by adolescents teaching religious subjects and ethics, and the remaining two groups of surveyors rank it among the last life styles. Hedonism as a life style is highly ranked by the group of surveyors who didn't learn ethics, nor religious subjects, but this isn't the case with the other two groups of surveyors. Altruistic orientation is highly ranked by adolescents learning religious subjects and ethics and adolescents learning ethics, but not adolescents who aren't learning ethics, nor religious subjects. The utilitarian orientation is highly ranked by adolescents who learn ethics and those neither learning ethics, nor religious subjects, but this isn't the case with adolescents learning ethics and religious subjects. All groups of surveyors rank lowest popular orientation and power as a life style.

The differences regarding value orientations, instrumental and terminal values are identified with calculation of a singular Analysis of variant (ANOVA). The partial comparison among the groups of surveyors is made using the Bonferroni post-hoc test. It can be perceived that there are statistically significant differences on a level of 0.01 ( $p < 0.01$ ) among the groups of surveyors in regard to the following value orientations: family, altruistic and utilitarian orientation, cooperation and individualistic orientation, statistically significant difference on a level 0.05 ( $p < 0.05$ ) exist among adolescents learning religious subjects and ethics and adolescents who don't learn neither ethics, nor religious subjects (Table 1).

Table 1. Results of the differences among adolescents with different educational type regarding value orientation

Value orientations	M			SD			F	p
	AP	AE	AH	AP	AE	AH		
Family orientation	**6.29	**6.14	**5.54	1.30	1.50	1.71	8.331	.000
Altruistic orientation	**5.37	**4.72	**4.11	1.67	1.68	1.66	17.029	.000
Cognitive orientation	4.41	4.24	4.29	1.86	1.99	2.09	.210	.811
Utilitarian orientation	**3.60	**5.17	**5.14	1.97	1.56	1.74	30.067	.000
Popular orientation	*2.41	2.73	*3.03	1.89	1.88	1.99	3.132	.045
Individualistic orientation	*4.44	4.77	*5.22	2.15	2.13	1.90	4.425	.013
Promethean activity	4.70	4.55	4.34	1.71	1.87	1.72	1.325	.267
Hedonism	**2.87	**4.42	**4.49	1.86	2.03	2.07	24.155	.000
Religiosity	**6.81	**4.42	**3.78	0.58	2.22	2.41	75.770	.000
Power	**2.52	**3.45	**3.60	1.84	2.07	2.18	9.367	.000

Note: AP – adolescents learning religious subjects and ethics; AE – adolescents learning ethics; AH – adolescents learning neither ethics, nor religious subjects; \* - statistically significant differences among the groups on a level of 0.05 ( $p < 0.05$ ) after using of Bonferroni post-hoc test; \*\* - statistically significant differences among the groups on a level 0.01 ( $p < 0.01$ ) after using of Bonferroni post-hoc test. Higher arithmetic mean (M) means highly ranked instrumental value.

Adolescents learning religious subjects

and ethics rank honesty most highly from instrumental values. The group learning ethics ranks ambitiousness most highly, while, the group not learning ethics, nor religious subjects consider self-control as the most important value. All three groups of surveyors appreciate competing least from the instrumental values listed.

Statistically significant differences on a level 0.01 ( $p < 0.01$ ) exist among the three groups of surveyors regarding the following instrumental values: cooperation, capability, helping, generosity and competing. Regarding the instrumental value honesty, there is a difference on a level 0.01 ( $p < 0.01$ ) among adolescents learning religious subjects and ethics and adolescents learning neither ethics, nor religious subjects. There is a statistically significant difference among these two groups of surveyors on a level 0.05 ( $p < 0.05$ ) regarding the instrumental value logics. Adolescents learning religious subjects and ethics and adolescents learning ethics differ regarding the instrumental value clean. This difference is statistically significant on a level 0.05 ( $p < 0.05$ ). Among adolescents learning ethics and adolescents neither learning ethics, nor religious subjects there is a statistically significant difference on a level 0.05 ( $p < 0.05$ ) regarding the instrumental value: decisiveness (Table 2).

Table 2. Results of the differences among adolescents with different educational type regarding instrumental values

Instrumental values	M			SD			F	p
	AP	AE	AH	AP	AE	AH		
Ambitiousness	6.87	5.66	6.74	4.52	4.60	4.87	2.518	.082
Cooperation	*7.94	*7.90	*9.43	4.04	4.47	4.45	5.153	.006
Self-control	6.80	5.70	6.40	4.77	4.13	4.78	1.756	.174
Independence	8.01	6.97	6.69	5.39	4.58	5.18	2.212	.111
Honesty	**4.50	5.72	**6.63	3.85	4.15	4.39	7.838	.000
Decisiveness	7.22	*7.79	*6.40	3.93	4.15	3.59	4.256	.015
Resourcefulness	7.74	7.07	7.37	3.92	3.97	3.99	.837	.434
Capability	**9.00	**7.34	*7.78	3.73	3.68	3.89	6.012	.003
Helping	*6.92	*9.06	**9.40	4.05	4.12	4.17	12.318	.000
Pure	*9.21	*10.59	9.81	4.02	3.85	4.23	3.485	.032
Generosity	*8.28	**10.29	**10.43	4.53	4.21	4.36	8.748	.000
Logics	*10.26	9.29	*8.75	3.68	4.05	4.16	4.349	.014
Consciousness	9.69	9.48	9.15	4.00	4.12	4.10	.552	.576
Politeness	9.16	10.31	9.72	4.29	3.81	3.96	2.442	.088
Competing	**13.77	*12.15	**11.55	3.33	4.67	4.66	8.226	.000
Tactfulness	10.57	10.55	9.88	4.29	4.18	4.35	1.079	.341

Note: AP – adolescents learning religious subjects and ethics; AE – adolescents learning ethics; AH – adolescents learning neither ethics, nor religious subjects; \* - statistically significant differences among the groups on a level of 0.05 ( $p < 0.05$ ) after using of Bonferroni post-hoc test; \*\* - statistically significant differences among the groups on a level 0.01 ( $p < 0.01$ ) after using of Bonferroni post-hoc test. Lower arithmetic mean (M) means highly ranked terminal value.

Adolescents learning religious subjects and ethics rank most highly peace of mind from the terminal values. The group learning ethics ranks self-respecting most highly,

while, the group neither learning ethics, nor religious subjects consider as most important harmonic family life. Sincere love and true friendship is highly ranked by all three groups of surveyors, and they consider pleasure and the world of wonderfulness at least significant.

Statistically significant differences on a level 0.01 ( $p < 0.01$ ) exist among the three groups of surveyors regarding the following terminal values: peace in the world, self-respecting, peace of mind, equity, economic welfare and pleasure. Regarding terminal values: exciting life and social justice, there is a statistically significant difference of a level 0.05 ( $p < 0.05$ ) among adolescents learning religious subjects and ethics and adolescents neither learning ethics, nor religious subjects (Table 3).

Table 3. Results of the differences among adolescents with different educational type regarding terminal values

Terminal values	M			SD			F	p
	AP	AE	AH	AP	AE	AH		
Social reputation	9.28	8.89	9.60	4.56	4.90	4.79	.721	.487
Exciting life	*9.30	8.61	*7.58	4.48	4.89	4.47	4.250	.015
True friendship	5.48	5.89	5.90	3.63	3.91	3.46	.482	.618
Peace in the world	**6.46	**8.44	**9.30	4.23	4.56	4.88	11.748	.000
Self-respect	*9.57	**5.87	**6.84	4.40	4.14	4.12	24.002	.000
Harmonic family life	5.68	6.19	5.43	4.03	4.39	4.17	1.085	.339
Peace of mind	**4.90	**7.35	**6.96	3.59	4.24	4.43	11.637	.000
Equity	**8.29	**8.06	**9.84	3.28	3.62	4.19	8.588	.000
Wisdom	7.57	7.99	7.39	3.70	3.88	4.02	.824	.440
Economic welfare	**11.44	*10.65	**9.36	3.96	4.43	4.39	7.380	.001
True love	6.02	5.91	6.90	4.08	4.06	4.20	2.310	.101
Improving yourself	7.91	8.80	7.82	4.10	4.06	4.20	2.216	.111
Safety for loved ones	8.06	8.77	7.80	3.97	4.25	3.87	2.027	.133
Pleasure	**12.96	**11.25	**12.01	3.70	3.84	3.47	10.249	.000
Social justice	*10.73	11.23	*12.01	3.70	3.84	3.47	3.802	.023
World of wonderfulness	11.69	11.80	12.36	4.09	4.10	3.98	1.008	.366

Note: AP – adolescents learning religious subjects and ethics; AE – adolescents learning ethics; AH – adolescents learning neither ethics, nor religious subjects; \* - statistically significant differences among the groups on a level of 0.05 ( $p < 0.05$ ) after using of Bonferroni post-hoc test; \*\* - statistically significant differences among the groups on a level 0.01 ( $p < 0.01$ ) after using of Bonferroni post-hoc test. Lower arithmetic mean (M) means highly ranked terminal value.

### 3. DISCUSSIONS

According to the results gained we can conclude that there are life styles highly ranked by all groups of surveyors. Those are: family orientation, individualistic orientation and Promethean activity. Family is highly ranked by all of the surveyors because adolescents subjectively feel the need for creating and maintaining a family. Individualistic orientation isn't accidentally among the highly ranked by all of the surveyors because adolescence is a period when young people are aimed at themselves and personal independence and welfare. Such results are also accordance with the

results obtained from other researchers in the area (Rot and Havelka, 1973; Popadić, 1998; Mladenović and Knebl, 2000; Franc, Sakić and Ivčić, 2002; Frichand, 2007; Stojanova and Miloševa, 2009). The Promethean activity isn't often met highly ranked value orientation in other researches as in here. On the contrary, with some researchers it is among the lowest ranked (Joksimović, 1992; Mladenović and Knebl, 2000; Stojanova and Miloševa, 2009). This means that the persistent committing for creating of better and more equitable relations in the middle and society and the fight for long term goals and ideas was shown to be one of the priorities of the whole group of surveyors. Such results can be considered as news unlike the previous research of value orientations in adolescents in the area. The increased popularity of this style might be because of the latter changes implemented in the teaching-educational system in Macedonia and the increasing emphasizing of social importance for individuals and forming of long term goals.

Religiosity is most highly ranked by adolescents learning religious subjects and ethics, and the remaining two groups of surveyors rank it between the last by important life styles. Religiosity is also the lowest ranked in other research by the adolescents (Popadić, 1995; Franc, Sakić and Ivčić, 2002; Petrović and Zotović, 2012). Therefrom we can conclude that the high preference of religiosity by adolescents learning religious subjects and ethics is connected with their education type. Hedonism as a life style is highly ranked by the group of surveyors who neither learn ethics, nor religious subjects, but this isn't the case with the remaining two groups of surveyors. Hedonism is found as a preferred value orientation in many other researches (Mladenović and Knebl, 2000; Joksimović, 1992; Popadić, 1994; Frichand, 2007, Petrović and Zotović, 2012). In this case except for adolescents who neither learn ethics, nor religious subjects, other adolescents give advantage to other value orientations before social life and pleasure. For example, altruistic orientation is highly ranked by these two groups of surveyors, but not adolescents who neither learn ethics, nor religious subjects. Altruistic orientation is highly ranked by adolescents in the research of Rot and Havelka, 1973, but in the latter researches is ranked quite low (Popadić, 1995; Joksimović, 1992; Stojanova and Miloševa, 2009). Such results point to a repeated growing of popularity in life styles that imply committing for general interests and the wellbeing of others, especially in adolescents who learn

ethics and/or religious subjects.

The utilitarian orientation is highly ranked by adolescents learning ethics and those who neither learn ethics, nor religious subjects, but this isn't the case with adolescents learning ethics or religious subjects. Adolescents covered with the other researches of value orientations in the area also rank highly the utilitarian orientation (Lazarević, 1987; Lazarević and Janjetović, 2003; Popadić, 1995; Joksimović, 1992; Mladenović and Knebl, 2000; Stojanova and Miloševa, 2009), except in the research of Rot and Havelka, 1973 where utilitarian orientation is among the lowest ranked. In fact, the results have shown that adolescents appreciate quite highly well paid work, material safety and comforting life. This isn't the case uniquely with adolescents learning religious subjects who during their education are instructed to respect more spiritual, than material values. All groups of surveyors rank lowest popular orientation and power as a life style. This is also in accordance with other researches in the area where styles demanding higher social engagement are low ranked (Rot and Havelka, 1973; Vasović, 1988; Lazarević, 1987; Popadić, 1995; Mladenović and Knebl, 2000; Franc, Sakić and Ivčić, 2002; Petrović and Zotović, 2012).

From the ways of behaving: honesty, self-control and ambitiousness are ranked highly by all groups of surveyors, but still honesty is most important to adolescents learning religious subjects and ethics, ambitiousness to adolescents learning ethics, while, the group learning neither ethics, nor religious subjects considers self-control as most important value. All three groups of surveyors prefer least competing out of the instrumental values listed.

From life goals, adolescents learning religious subjects and ethics rank most highly peace of mind. The group learning ethics ranks most highly self-respect, while, the group neither learning ethics, nor religious subjects considers as most important the harmonic family life. Sincere love and true friendship are highly ranked by all three groups of surveyors, and least important for them are pleasure and the world of wonderfulness.

Based on the results presented above we can conclude that popular among adolescents are human values such as family, friendship and love. They are quite more oriented towards spiritual, then material values. Regarding the education type, of course it is most emphasized in adolescents learning religious subjects and according to this they appreciate honesty and peace of mind most highly as a value. Still, all

three groups of surveyors agree in the opinion that pleasure and the world of wonderfulness aren't as much important in their lives, as are love and the care for close ones and friendship.

Regarding the differences in the preferred values and life styles we can conclude that:

a) Adolescents learning religious subjects and ethics consider as most important the faith in God and a life according to their learning about faith; then to meet a person who will love them and they will love and with him or her form a family they will totally devote to. It is also quite significant to them to help other people. These adolescents also differ from the other groups of surveyors because they prefer more instrumental values: honesty, helping, cooperation, generosity and clean, and less competing, logics and capability. This group of surveyors unlike the rest prefers significantly more these terminal values: peace of mind, peace in the world and social justice, and less: pleasure, economic welfare, self-respect and exciting life. Equity is appreciated more by adolescents neither learning ethics, nor religious subjects, but less by adolescents learning ethics.

b) Adolescents learning ethics consider as most important the care for the family and to have a well-paid job providing them full material safety and possibility to be independent and care for their own welfare. This group of surveyors respect capability was significantly more than the other groups of surveyors and significantly less decisiveness and clean as ways of behavior. They prefer cooperation, helping, generosity and competing as instrumental values significantly more than adolescents neither learning ethics, nor religious subjects, but significantly less than adolescents learning religious subjects and ethics. Regarding life goals, this group of surveyors prefer: self-respect, equity and pleasure significantly more than the other two groups of surveyors, and peace of mind significantly less than all of the surveyors. They appreciate peace in the world more than adolescents neither learning ethics, nor religious subjects, but significantly less than adolescents learning religious subjects and ethics. The economic welfare, they appreciate significantly more than adolescents learning religious subjects and ethics, but significantly less than adolescents neither learning ethics, nor religious subjects.

c) For adolescents neither learning ethics, nor religious subjects family also comes first, but also material safety, as to fun



and pleasure in life is also of large significance to them. From the instrumental values, this group of surveyors prefers decisiveness and logics significantly more than the other two groups of surveyors, and significantly less than three groups of survey or give importance to competing, generosity, cooperation, helping and honesty. They prefer capability significantly more than adolescents learning religious subjects and ethics, but less than adolescents learning ethics. This group of surveyors, unlike the other two groups, prefers significantly more following terminal values: exciting life and economic welfare, and significantly less: social justice, equity and peace in the world. Self-respecting and pleasure prefer more than adolescents learning religious subjects and ethics, but less than adolescents with learning ethics. Peace of mind they appreciate more than adolescents learning ethics, but significantly less than adolescents learning religious subjects and ethics.

#### 4. CONCLUSIONS

The studying of the values and value orientations is especially important in the adolescent age, because it is the period of the ontogenesis when a development of value orientations happens enabling their functioning as a separate system. They especially affect the person's orientation and her active social position. Many value orientations are formed just in the adolescent period because young people are more susceptible to social and culture changes in society.

The shown differences in value orientations, instrumental and terminal values among adolescents with different education type are enough to conclude that there is statistically significant difference between value orientations in adolescents depending on their education type, respectively depending on the fact they learn ethics or religious subjects or, such subjects aren't included in their lectures.

It is obvious that value orientations in adolescents are subjected to changes in the last years, and this will surely affect the future of society in general, because nowadays adolescents are the future intellectual resources of our earth. That is why the researches of this problem are important for the total society. They show the social, cultural and spiritual changes happening among young and with this in society. So, the main mission of educational institutions must be directed towards creating of conditions for full development of

personality of adolescents and their spiritual potential.

#### Conflict of interests

Authors declare no conflict of interest.

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# IMPACT OF COMPUTERS ON THE CREATIVITY OF CHILDREN

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**Abstract.** This study tried to determine whether the computer had affects on the creativity of children. A random sample of 120 parents were tested to give their opinion. This study used a descriptive-analytical method. The technique which used is the interview, and the main instrument is specially designed for this research. The results shows that the use of computers have affects on the creativity of children. The obtained data were analysed by issues within established research tasks.

**Keywords:** Creativity, Computer, Children, Video games.

## 1. INTRODUCTION

The very notion of creativity should be a simple concept that is defined as a mental process that involves new ideas or concepts. However, this concept does not be too easy and is difficult to define and measure (Runcha and Albert, 2010). Many authors (Hocevar and Bachelor, 1989; Park and Byrnes, 1984; Parkhurst, 1999) explains that there are numerous definitions of the notion of creativity. Regarding the measurement of creativity in children using computers, the Internet and mobile phones had shown that there is not any connection between these technologies with the creativity of children. When it comes to gender, it is known that boys play more video games than girls. Regardless of this fact, there is no connection between gender and video games, with the development of creativity in children (Gentile, 2009; Jackson, 2008). On the other hand research results (Jackscon at all 2012) show that there are a link between playing video games and creativity of children age 12. With the development and application of ICT, there was a lot of controversy about

how these technologies, especially the use of computers, have an influence on the cognitive development of children (Wartelle and Jennings, 2000).

Feldhusen (2002) said that creativity is a process that takes place in four stages: fluency, flexibility, originality and elaboration. Fluent stage of creativity is based on the extraction of information from memory, ie, appealing to the conscience of previously acquired information. Flexible phase of creativity is largely, non-cognitive function of personality and partly cognitive function, because highly correlated with intelligence. Elaboration phase of creativity is based primarily on adding details drawn from memory, or to extract information for the elements that should be added. Originality is the final phase of creativity. This is the final court that the true evaluators of the creative product.

Creativity is usually associated with cognitive ability and cognitive tests. Most often creativity related with intelligence (Simonton 2004).

Sternberg (2003) identifies five components of creativity:

- Expertise: well-developed knowledge base,
- Imagination: the ability to see things in their own way, to recognize patterns,
- An enterprising person: seeking new experiences, tolerates ambiguity and risk, perseveres in overcoming obstacles,
- Internal motivation: Driven more interest, satisfaction, and challenge more than external factors,
- Creative Environment: initiator, supports and refines ideas.

Various authors (Lachlan et al, 2005; Lachlan et al, 2005) usually emphasize the negative and violent video games and properties of the public and the society accepts that playing video games causes violent and negative traits in children. However, numerous

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studies show a connection between playing violent games and violent behavior. [Carnagey and Anderson \(2005\)](#) reported that in the case of the use of video games, driving a car, the players showed more aggressiveness than those who have not played. [Konjin at all \(2007\)](#) suggest in their paper that adolescents who identified with the negative characters from the game are far more display aggressive behavior in the real world.

[Kamenov \(2006\)](#) argues that due to electronic toys develop the sensibility of today's children while the older generation on stunted. It also believes that modern technology gives children more opportunity to develop independent action of initiative and imagination and externalization, which become amplifiers children creativity. Computers and computer software for children enrich the environment. It is extremely stimulating and allows children to discover different aspects of experience, accelerating their intellectual maturation and encourages them to develop creative potential.

Information technology, depending on the manner in which it is used, can be positively or negatively affect the child's development. [Andjelkovic \(2008:158\)](#) points out that the potential positive impacts related to the process of cognitive development, the development of symbolic representation, development of attention, opportunities and understanding of the essence, clearly and faster classification, decision making, analysis, understanding of cause-effect relationships, the development of memory, encouraging creativity, encouraging curiosity, develop imagination, problem solving process, increase motivation. Negative impacts are related to the reduction of creativity and creative thinking, reducing the ability for daydreaming, poor concentration, problems with attention and reducing the patience to work and learn.

## 2. METHODS

This study used a descriptive-analytical method. The technique which used is the interview, and the main instrument is specially designed for this research and a questionnaire for parents. The population consists of parents who are selected at random. The sample consisted of 120 parents of the children aged 6. The obtained data were analyzed by issues within established research tasks.

The research problem is whether the computer affects the creativity of children. Problem research shows results that cannot be

ignored, and given as an answer to the question of what impact does computers have on the creativity of children. The subject of research is the impact of computers on creativity of children. First of all, we are interested in what is the attitude of parents about the impact of computers on the behavior of children in order to get the answer to our problem.

The aim of the research seeks to determine what are the attitudes of parents about the impact of computers on creativity of children. Here we thoughts on the use of computers and the impact that it has on children. The task was as follows: Determine whether computers have affects on creativity in children; to determine is there a relationship between genders and gaming with the development of creativity; determine whether video games affect the development of creativity in children.

The general hypothesis is that parents think that the computer has a large impact on the creativity of children, as well as on the behavior of children. Specific hypotheses are: It is assumed that there is a relationship between gender and gaming with the development of creativity; It is assumed that video games influence the development of creativity in children.

## 3. RESULTS

The data obtained through the survey were analyzed on issues within established research tasks. Taking into consideration the nature of the problem and research, as well as the used methods, techniques and instruments performed a quantitative data analysis in SPSS.

Table 1. Do computers affects creativity in children?

			Do computers affects creativity in children?		Total
			Yes	No	
Gender	Male	Count	45	8	53
		% within Gender	84,9%	15,1%	100,0%
		% within Do computers affects creativity in children?	44,1%	44,4%	44,2%
		% of Total	37,5%	6,7%	44,2%
	Female	Count	57	10	67
		% within Gender	85,1%	14,9%	100,0%
		% within Do computers affects creativity in children?	55,9%	55,6%	55,8%
		% of Total	47,5%	8,3%	55,8%
Total	Count		102	18	120
	% within Gender		85,0%	15,0%	100,0%
	% within Do computers affects creativity in children?		100,0%	100,0%	100,0%
	% of Total		85,0%	15,0%	100,0%

In Table 1, we see that 45 males sub-jects



(84.9%) responded that computers affects creativity in children, while only 8 subjects or 15.1% responded negatively. As a percentage of the claim, it makes 44.1% of subjects said “Yes” while 44.4% responded negatively. As for females, 57 (85.1%) responded affirmatively while 10 of them (14.9%) responded negatively. As a percentage of the claim, it makes 55.9% of subjects said “Yes” while 55.6% responded negatively.

Table 2. Is there a relationship between gender and gaming with the development of creativity?

			Is there a relationship between gender and gaming with the development of creativity?		Total
			Yes	No	
Gender	Male	Count	12	41	53
		% within Gender	22,6%	77,4%	100,0%
		% within Is there a relationship between gender and gaming with the development of creativity?	52,2%	42,3%	44,2%
		% of Total	10,0%	34,2%	44,2%
	Female	Count	11	56	67
		% within Gender	16,4%	83,6%	100,0%
		% within Is there a relationship between gender and gaming with the development of creativity?	47,8%	57,7%	55,8%
		% of Total	9,2%	46,7%	55,8%
Total	Count		23	97	120
	% within Gender		19,2%	80,8%	100,0%
	% within Is there a relationship between gender and gaming with the development of creativity?		100,0%	100,0%	100,0%
	% of Total		19,2%	80,8%	100,0%

In Table 2, we see that 12 males subjects (22.6%) responded that there is a relationship between gender and gaming with the development of creativity, while only 41 subjects or 77.4% responded negatively. As a percentage of the claim, it makes 52.2% of subjects said “Yes” while 42.3% responded negatively. As for females, 11 of them (16.4%) responded affirmatively while 56 of them (83.6%) responded negatively. As a percentage to the claim it makes 47.8% of subjects said “Yes” while 57.7% responded negatively.

Table 3. Do video games affect the development of children’s creativity?

			Do video games affect the development of children's creativity?		Total
			Yes	No	
Gender	Male	Count	40	13	53
		% within Gender	75,5%	24,5%	100,0%
		% within Do video games affect the development of children's creativity?	40,8%	59,1%	44,2%
		% of Total	33,3%	10,8%	44,2%
	Female	Count	58	9	67
		% within Gender	86,6%	13,4%	100,0%
		% within Do video games affect the development of children's creativity?	59,2%	40,9%	55,8%
		% of Total	48,3%	7,5%	55,8%
Total	Count		98	22	120
	% within Gender		81,7%	18,3%	100,0%
	% within Do video games affect the development of children's creativity?		100,0%	100,0%	100,0%
	% of Total		81,7%	18,3%	100,0%

In Table 3, we see that 40 males subjects (75.5%) responded to video games affect the development of creativity in children, while only 13 subjects or 24.5% responded negatively. As a percentage of the claim, it makes 40.8% of subjects said “Yes” while 59.1% responded negatively. As for females, 58 of them (86.6%) responded in the affirmative while only 9 (13.4%) responded negatively. As a percentage of the claim, it makes 59.2% of subjects said “Yes” while 40.9% responded negatively.

## 4. DISCUSSION

The results show that the majority of parents, 102 subjects (85%) responded that the computers have affects on the creativity of children while only 18 subjects (15%) stated that the computers do not have affects on the creativity of children. Of the total patients, 45 male and 57 female subjects responded positively while only 8 male and 10 female subjects responded that the computers do not have affects on the creativity of children. Based on these results, we can confirm the general hypothesis that parents think that the computer has a large impact on the creativity of children, as well as on the behavior of children.

As many as, 97 subjects (80.8%) stated that there is no correlation between gender and gaming with the development of creativity, while only 23 subjects (19.2%) stated that there is a relationship between gender and gaming with the development of creativity. From all respondents, 12 male and 11 female subjects answered that there is a correlation



between gender and gaming with the development of creativity. A number of subjects, 41 males and 56 females responded that there is no correlation between gender and gaming with the development of creativity. The obtained results indicate that we cannot accept the hypothesis that there is a special relationship between gender and gaming with the development of creativity.

Ninety-eight of them (81.7%) stated that video games influence the development of creativity in children, while only 22 (18.3%) stated that video games do not influence the development of creativity in children. Of these 98 subjects, 40 male and 58 female subjects answered that video games influence the development of creativity in children while 13 male and 9 female subjects answered that video games do not influence the development of creativity in children. Based on these results, we can accept the specific hypothesis that video games influence the development of creativity in children.

## 5. CONCLUSION

From this research, we can see that the majority of parents felt that the computer affect the creativity of children. It is obvious that there is no correlation between gender and gaming with the development of creativity, as the largest number of subjects said there is no connection between gender and playing video games, which is confirmed by the statement of the author (Gentile, 2009; Jackson, 2008). However, it is necessary to carry out far-reaching research to determine this relationship. These results can serve as a starting point for further investigation in order to identify differences in the parents. Development of creativity plays a big role video games and it depends on them whether the children develop cognitive abilities or the child will become antisocial and aggressive. As a result of playing video games that are inappropriate for children to age, child will be a reduction in creativity and creative thinking. The children will be left to the virtual world and not the world of fantasies, which play a main role in the development of creativity. These negative traits can be overcome by the use of selected programs that will develop creativity in children. If we ignore the influence of video games and what effect they leave, the children alone computer use helps children develop logical thinking, logic solving mathematical problems and how to solve many other

problems. Computer use in child development develops the spirit of research where children develop their creativity. It is recommended that we don't need to forbid the use of the computer but to control the time which child spends with the computer as well as perform a selection of material selection that offers the child, in order to develop creativity in the right direction.

It can be concluded that the proper use of computers, this primarily refers to programs that are tailored to the children's age, children's environments, which enrich the children discover new experiences, intellectually mature and thus develop their creativity.

### Conflict of interests

Authors declare no conflict of interest.

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## INTERACTIVE TOURISM LESSONS WITH THE UTILIZATION OF SHORT ECOTRAILS

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**Abstract.** Tourism is one of the most accessible and widespread physical activities used for physical and intellectual improvement, promoting health and enhancing the overall working capacity. Any willing individual without serious deviations in their health status can participate, regardless of their physical fitness level. Tourism education is widely practiced in the educational curriculum of physical education and sports as an addition to the main program of study and as modular education. The various forms of tourism include theoretical and practical classes, which can be held not only in nature, but also, in certain cases, in the gym hall or the school's surrounding area. The physical activities included in tourism influence and complement the physical activities included in the main program of study (track-and-field athletics, sports games and gymnastics) and vice versa.

**Keywords:** *Tourism, sport, Physical education, Theoretical and practical instruction.*

### 1. INTRODUCTION

Tourism is one of the most accessible and widespread physical activities used for physical and intellectual improvement, promoting health and enhancing the overall working capacity. Any willing individual without serious deviations in their health status can participate, regardless of their physical fitness level. Tourism education is widely practiced in the educational curriculum of physical education and sports as an addition to the main program of study and as modular education.

The various forms of tourism include theoretical and practical classes, which can be held not only in nature, but also, in certain cases, in the gym hall or the school's surrounding area. Physical activities were included in tourism influence and complement the physical activities included in the main program of study (track-and-field athletics, sports games and gymnastics) and vice versa.

Tourism is not just the means of physical and practical education. It also participates in the students' personal development. It's a wonderful medium for satisfying the innate necessity for movement, for strange and romantic adventures, for social relations and so on, which is typical of the students' age. Additionally, through it students discover some character traits and abilities that they have not been displayed in their normal learning environment. In this regard, tourism activities are particularly important for the teachers themselves, because through their usage they may become even more acquainted with each student. This will help them find the most suitable way to influence the students individually, achieve cooperation and mutual understanding.

Tourism is a wonderful and effective medium used for improving the adolescents' physical and mental traits, and for maintaining and strengthening their well being. Tourism education forms a number of highly valued personality traits and practical skills. Students add to the knowledge they received in geography, biology, astronomy or mathematics and they try to make sense by observing it from different aspects, thus converting that knowledge into a potential with practical implications. Instead of just talking about it, students are learning about teamwork, tolerance and overcoming obstacles in real life situations.

All this confirms the positive effect that

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tourism education has on the overall development of adolescents, and it exposes the necessity of improving this field so that it remains interesting and attractive to them.

A successful attempt along these lines is teaching tourism lessons by utilizing short ecotrails. The idea and the practical application of this innovative approach is credited to the authors of this paper. Such lessons have been successfully executed with students from Veliko Trnovo and Skopje, which are an indicator for their versatile nature and effectiveness, considering the proper conditions have been met.

**The purpose** of this article is to present the positive outcome of the attempt at teaching tourism lessons by utilizing short ecotrails, in accordance with the goals and objectives of tourism courses for fifth and sixth grade students in elementary school.

## 2. DISCUSSION AND RESULTS

What is notable of a lesson such as this one, is its interactive nature and the possibility of teaching it in the open, on a short ecotrail 1300 meters in length which has excellent opportunities for learning. Essentially, the ecotrails are specifically organized, mostly with circular routes located in areas with remarkably beautiful untouched nature. The trails' terrain is varied and includes sections which are very difficult to overcome since they require quick wits and boldness. This leads to the logical conclusion that in the timeframe available in a single school day, such lessons can only be conducted in schools which are located near a woodland area or a park with natural vegetation. However, this is possible for students of any school, if conducted during a day off, since there is enough time to reach the respective ecotrail.

Considering the advantages of the interactive tourism lessons conducted on a short ecotrail, we come to the following conclusion:

- These activities are acquired emotionally by the students and they influence the development of the adolescents' value system.
- Not only do these planned recreational activities have a favorable effect on the students' physical and intellectual traits, but they also have a practical importance for enriching their personal experience.
- The ability to inform themselves in the environment gives them

confidence that they can handle any unexpected and complicated situations. The terrains, used for orientation lessons, offer an excellent opportunity for education by utilizing a topography map. In the educational program in nature it is appropriate to include various recreational sports with orientation elements.

- In order to move on the ecotrail the students will have to either walk or run, which is favorable from a methodical point of view since the intensity of the exercise can be regulated in the following aspects:
- Walking and running are natural cyclical human motions, and the physical exertion can be of low, moderate or vigorous intensity. Correct breathing and place are of great importance in these activities and they vary among each individual.
- Skillful selection of intensity can improve the blood flow and metabolism, and strengthen the muscles. That is why walking and running are recommended as activities that improve health.
- Increasing the overall working capacity allows the students to better deal with the overburdened school day by preserving and improving their health.

This practical method is directed not only toward physical improvement, but also toward stimulating the students' cognitive activity, thus, opening opportunities for them to broaden their outlook on sports and tourism, and to develop healthy lifestyle habits.

We now propose we turn our attention to the contents and consistency of a variant of an interactive lesson with the utilization of a short ecotrail.

**Lesson subject:** Tourism and tourism skills.

### **Tasks:**

- Educational: developing physical qualities and abilities by walking and running on a tourist trail and learning practical tourist skills.
- Well-being: advancing the students' general endurance, strengthening the cardiovascular system.
- Disciplinary: building a sense of teamwork and improving communication, initiation and creativity skills.

**Necessary equipment and appliances:** flags, tents, wooden beams,

topographical marks, a collection of plants, a chronometer.

**Lesson duration:** 90 min. Thus, connecting the duration of two school classes. The entire class warms up for 8-10 min., after which they are divided into 2 groups. While the students in the first group are performing the tasks on the ecotrail for 35-38 min., the students in the second group are aligned at the stations where they observe the correct manner in which the lessons are expected to be completed. Afterwards, the two groups switch roles and perform the appropriate activities. The entire class participates in the final part which takes place for 5-6 min.

Table 1. Interactive lesson with the utilization of a short ecotrail

	Contents	Duration
<b>1.</b>	<b>Preparation</b>	<b>9 min.</b>
1.1.	Class lining up and announcing the tasks. Dividing the class in two groups.	1 min.
1.2.	Students take their own pulse for the first time.	1 min.
1.3.	Advancing toward the trail's start line by running with light intensity.	2 min.
1.4.	Warming up in pairs (whole body exercises).	5 min. (5-6 ex.)
<b>2.</b>	<b>Main part</b>	
2.1.	Indicating the dangers and instructing how to safely complete the tasks at the stations which the students have to reach by alternating between walking and running.	1 min.
2.2.	Taking a starting stance.	2 min.
2.3.	Station 1. Setting up a tent.	6 min.
2.4.	Station 2. Going on a route on which there is a small brook. Practical exercises are performed over it using equipment made from natural materials (beams, stumps, stakes etc.)	3 min.
2.5.	Station 3. Tying knots. 6 of the knots used in tourism are chosen, depending on the teachers' capabilities. Walking - running 400 m.	3 min.
2.6.	Station 4. Overcoming a "precipice" by setting a beam and walking over it. Walking - running 200 m.	3 min.
2.7.	Station 5. Carrying an injured person on a 20 m. Distance using various methods. Walking - running 100 m.	2 min.
2.8.	Station 6. Reading a map with topographical marks. Walking - running 300 m.	3 min.
2.9.	Station 7. Identifying plants - differentiate which have medicinal properties and which do not. Walking - running 200 m.	2 min.
2.10.	Station 8. Throwing pinecones at targets - trees that are located at varying distances.	2 min.
2.11.	Station 9. Disassembling and packing the tent.	3 min.
2.12.	Station 10. Preparing fire with the "well", "star" and "shack" method. (it is not ignited)	3 min.
2.13.	Finish. Students take their own pulse.	1 min.
2.14.	Groups switch roles.	1 min.
<b>3.</b>	<b>Final part</b>	<b>5 min.</b>
3.1.	Announcing the end result of the performed tasks by giving an account of the achievements and mistakes.	1 min.
3.2.	Giving directions and recommendations for further independent recreational activities.	1 min.
3.3.	Returning to the school facility.	3 min.

### 3. CONCLUSION

1. The described experiment of a tourism lesson demonstrates that searching for and implementing modern methods of approach in educational activities has positive results. Rest assured, these lessons are applicable and can be carried into effect. The presented lesson represents a practically valuable example because it can be applied in a real educational environment and it corresponds to the modern

trends in this area.

The positive effect is achieved in the following:

- by reaching the necessary intensity with the exercises, the students' complex physical traits are developed;
- their motor functions and practical skills are improved;
- their endurance and their curiosity are increased;
- they learn to listen to their classmates' opinion and make decisions independently;
- the mutual understanding between the PE (physical education) teacher and the students is increased.

It's particularly important to prepare preliminary instructions for the lessons regarding the organization, the equipment and the teachers' competence.

By examining the proposed pedagogical experiment analytically, we can infer the following general conclusion:

1. There is a necessity for a more decisive break down of the didactical patterns, and a need for adopting current models that promote student interaction, communication with nature and an increase in their physical activity.

2. Tourism education should be used more purposefully to increase the students' physical, and mental health and to strengthen the adaptive ability of their organism against the unfavorable environmental factors.

3. The teachers' professional competence and motivation in collaboration with the public institutions are the main factor in achieving success in this area.

4. By gaining the parents' trust and finding a common cause for assisting in the various activities and gaining their trust, they can be attracted to share the same views.

### Conflict of interests

Authors declare no conflict of interest.

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## PHRASEOLOGICAL UNITS WITH THE CONJUNCTION OR IN THE ENGLISH LANGUAGE

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**Abstract.** This paper presents the results of research devoted to the phraseological units with the conjunction or, analyzed from the viewpoint of their semantic integrity, structure and means, providing their stability and cohesion.

**Keywords:** *Phraseological unit, Disjunctive conjunction, Phraseological derivation.*

### 1. INTRODUCTION

Word-groups consisting of two or more elements the combination of which has a specialized meaning of the whole are called set expressions, idioms, or phraseological units. The most important characteristic features of such word-groups are stable and fixed nature which is determined according to the statistical probability of co-occurrence for their constituent words in variable contextual environment (Арнольд, 1986, 165).

Phraseological units are contrasted by free phrases and word. Free word groups permit substitution of any of their elements. If substitution is only pronominal, or restricted to a few synonyms for one of the members only, or impossible as it may destroy the meaning or the euphonic and expressive qualities of the whole, that is if elements of the phrase are always the same and make a fixed context for each other, the word-group has a phraseological status (Арнольд, 1986, 168).

On the one hand, the main point of difference between a word and a set expression is the divisibility of the latter into separately structured elements which is contrasted to the structural integrity of words. On the other hand, phraseological units are regarded as word equivalents because they are not created in speech but introduced into the act of

communication ready-made and represent one member of the sentence (Арнольд, 1986, 175, 167).

The syntactical integrity does not mean that there are no syntactical ties within set expressions themselves which can be proved by the possibility of syntactic transformations (however limited) or inversion of elements and the substitution of the element which is structurally necessary but free to vary lexically without destroying the phraseological unit as such. Another convincing manifestation of syntactic ties within set expressions is the fact that some of them permit to break the sequence of elements and insert some additional words which. Splitting the phraseological unit does not destroy it either. Finally, some set expressions are subjected to morphological change (Арнольд, 1986, 176).

Set expressions are extremely varied structurally, functionally, semantically and stylistically. Those of them which have one and the same word as a core component and which realize various types of meanings from phraseological clusters (Архангельский, 1964, 64). Phraseological cluster can be made of set expressions not only with the national common core component, but also with the core component, represented by formal words, such as conjunctions, in particular the disjunctive conjunction or.

The objective of this article is to consider phraseological units with the conjunction or in the framework of their structure, the degree of amalgamation and means, contributing to their stability and cohesion.

### 2. MATERIALS AND METHODS

The research is based on the English-Russian phraseological dictionary of A. Kunin. The tasks of the study are:

- picking up the phraseological units with the disjunctive conjunction or;

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- classification of the phraseological units with the disjunctive conjunction or according to their semantic integrity;

- singling out various structural models of the phraseological units with the disjunctive conjunction or;

- determining the semantic relations between notional words joined into the phraseological units by the disjunctive conjunction or;

- stating the phonetic peculiarities of the phraseological units with the disjunctive conjunction, or.

The methods applied in this study are selected in accordance with the objective and tasks of research. Structural types of set expressions are revealed with the help of the analysis into immediate constituents. The degree of their semantic blending is established taking into account the motivation of the phraseological unit, which is the relationship between the meaning of the whole and the meaning of its components, which in its turn is stated on the basis of the definitions from the dictionary. Explanatory dictionaries also facilitate the establishment of semantic groups of words to which the constituent national elements of the discussed set expressions belong to.

### 3. RESULTS AND DISCUSSIONS

The analysis of the above mentioned phraseological dictionary reveals 40 phraseological units with the conjunction or which are joined into a separate microsystem. Other disjunctive conjunctions, namely *either... or*, *whether... or*, *if... or*, did not appear in English set-expressions.

Conjunction *or* can be called the core component of these phraseological units, because they are based on the same principle as free word combinations with the disjunctive connection. Being the subtype of coordinative relations, it presupposes the equality of elements united by the conjunction into a syntactic construction. Thus, it is impossible to state which of the homogeneous components is principal and which the subsidiary is. So the status of the main element in such word-groups is ascribed to the conjunction *or*, the semantic properties of which differentiate disjunctive constructions from other syntactic structures with coordinative connection.

The conjunction as a part of speech indicates the relations between coordinated elements. Syntactic relations between words and sentences reflect the relations between

the phenomena and situations in the objective reality, expressed by these words and sentences. The relation, conveyed by the conjunction *or*, belongs to the logical type, found between several mutually exclusive elements. That is why the disjunctive conjunction *or* is also known as alternative.

According to the semantic integrity, established by the degree of motivation correlated with the rigidity and indivisibility, set expressions with the conjunction *or* can be divided into three classes, such as: phraseological fusions, phraseological unities and phraseological combinations.

Phraseological fusions represent as their name suggests the highest stage of blending together. The meaning of components is completely absorbed by the meaning of the whole by its expressiveness and emotional properties (without rhyme or reason, make a spoon or spoil the horn, common or garden).

Phraseological unities are clearly motivated and their emotional quality is based upon the metaphorical image created by the whole (*black or white*, *by hook or by crook*, *come hell or high water*, *fish or cut bait*, *rain or shine*, *hit or miss*, *neck or nothing*, *by fair means or foul*, *through fair or foul*, *stand or fall*, *make head or tail of something*, *not for love or money*, *root hog or die*, *sink or swim*).

Phraseological combinations are motivated, but at the same time semantically inseparable. The meaning of the unit of this class is a blend of the meanings of its constituents which thus can't be altered or omitted (*a thing or two*, *a word or two*, *know a thing or two*, *tell somebody a thing or two*, *more or less*, *first or last*, *little or nothing*, *now or never*, *once or twice*, *one or two*, *one time or another*, *one way or another*, *somehow or other*, *something or other*, *sometime or other*, *sooner or later*, *there or thereabouts*, *two or three*, *whether or no (not)*, *or so*, *end or mend*, *make or break*).

Some linguists consider set expressions to be unsystematic units. They are never built according to certain rules. The appearance of such rules would deny their random nature (Кунин, 2005, 85) and contradict the most important feature of phraseological units which consists in their unpredictability in the structural and semantic aspects. The process of their creation is not regulated consciously. But there is also the opinion that phraseological units like elements of other levels in the language system are built according to definite patterns (Гвоздарев, 1977, 173). T. Asten believes that phraseological derivation does exist and the models of it have been developing

with the history of the language and indicate the potential phraseological system. Phraseological patterns prove that the development of phraseology of the language has a regular character, because the formation of the majority of set expressions is not accidental, but based on particular models (Астех, 2005, 26).

Analysis of phraseological units with or confirms this opinion, as almost all of them consist of two components joined the disjunctive conjunction with one exception represented by or so, where the first component of the construction is free to vary. The majority of phraseological units with or contain nothing but coordinated homogeneous elements: (once or twice, one or two, a thing or two, a word or two, two or three, first or last, more or less, sooner or later, there or thereabouts, sometime or other, somehow or other, something or other, little or nothing, common or garden, whether or no (not), rain or shine, by hook or by crook, by fair means or foul, through fair or foul, one way or another, not for love or money, without rhyme or reason, black or white, now or never, make or break, fish or cut bait, hit or miss, end or mend, neck or nothing, sink or swim, stand or fall, one time or another, root hog or die, make a spoon or spoil a horn).

Only several phraseological units contain components following and/or preceding the homogeneous elements joined with the conjunction (come hell or high water, tell somebody a thing or two, know a thing or two, make head or tail of something, marriage makes or mars a man).

In most cases homogeneous constituents of disjunctive constructions in phraseological units are represented by lexemes (once or twice, one or two, a thing or two, a word or two, two or three, first or last, more or less, sooner or later, there or thereabouts, sometime or other, somehow or other, something or other, little or nothing, common or garden, whether or no (not), rain or shine, black or white, now or never, make or break, hit or miss, end or mend, neck or nothing, sink or swim, stand or fall, tell somebody a thing or two, know a thing or two, make head or tail of something, marriage makes or mars a man).

These lexemes can belong to the same or different parts of speech, thus making the following patterns:

- [noun or noun] rain or shine;
- [verb or verb] make or break, hit or miss, end or mend, sink or swim, stand or fall;
- [adjective or adjective] black or white, common or garden;

[adverb or adverb] once or twice, now or never, first or last, more or less, sooner or later, there or thereabouts;

[numeral or numeral] one or two, two or three;

[pronoun or pronoun] something or other.

[noun or numeral] a thing or two, a word or two;

[adverb or pronoun] sometime or other, somehow or other;

[adjective or pronoun] little or nothing;

[noun or pronoun] neck or nothing;

[conjunction or particle] whether or no (not).

Thus, the most productive models are [verb or verb] and [adverb or adverb].

In some phraseological units with or homogeneous components are nouns with preposition (by hook or by crook), which can be omitted in the second component (through fair or foul, not for love or money, without rhyme or reason). In some phraseological units one or both homogeneous components can be represented by the combinations of notional words (fish or cut bait, one way or another, one time or another, root hog or die, make a spoon or spoil a horn, come hell or high water). In the set expression by fair means or foul one can observe the combination of adjective and noun with preposition in the first component of the disjunctive construction and the omission of the notional and formal words in the second component.

Phraseological units have their own specific features, which enhance their stability and cohesion. Among them are their euphonic qualities and semantic features (Арнольд, 1986, 177, 178).

Euphony is achieved through phonetic repetition which serves to produce alliteration and rhythm. Alliteration is defined as repetition of vowels and/or consonants in the beginning of words: now or never [n], without rhyme or reason [r], neck or nothing [n], sink or swim [s], through fair or foul [f], make a spoon or spoil the horn [sp], marriage makes or mars a man [m]. Rhyme is a repetition of consonants and vowels in the end of words: make or break [eik], end or mend [end], by hook or by crook [uk].

Various semantic relations are singled out between homogeneous components of the disjunctive constructions in the phraseological units, in particular, synonymy (by hook or by

crook); tautology (there or thereabouts); antonymy (first or last, more or less, sooner or later, black or white, stand or fall, through fair or foul). In the latter case the phraseological unit may contain not only systematic but also occasional antonyms (rain or shine, sink or swim, hit or miss, make head or tail of something), as well as words the contrary meanings of which are due to the generalized semantics of the verb make (marriage makes or mars a man, make or break).

In paired phraseological units with coordinated connection of disjunctive type two words with direct meanings are combined to acquire a new sense. In tautological set expressions, the repetition emphasizes the semantic feature which cannot be underlined otherwise (Попова, 1986, 99). So, there or thereabouts expresses vagueness, approximation. Synonyms are combined into phraseological units due to the partial coincidence in their meaning, which is thus intensified, whereas differentiating semantic features are also preserved. Antonymous lexemes in the paired set expressions denote things referring to the same class, but opposed to each other (Попова, 1986, 101).

#### 4. CONCLUSIONS

Phraseological units with the conjunction or are made up by definite structural patterns of different productivity. These set expressions possess various degrees of integrity facilitating their further classification. Their cohesion and stability are achieved through special phonetic and lexical features.

##### Conflict of interests

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# INTERACTION OF ALTERNATIVENESS AND ANTONYMY AND ITS REALIZATION IN THE ENGLISH LANGUAGE

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**Abstract.** This paper presents the results of research devoted to one of the significant aspects of language categories, namely, their interaction. Alternativeness and antonymy are described in their interaction, the realization of which in the English language is shown through the distributional and contextual analysis. The form and variety of this interaction also reveal the diversity of alternative situations existing in reality.

**Key words:** *Interaction, Alternativeness, Antonymy, Form and variety of interaction, Disjunctive conjunctions, Systematic and non-systematic antonyms.*

## 1. INTRODUCTION

The elements in the objective reality as well as the thoughts about them in the human consciousness exist in interaction (Кондаков, 1975, 87) which is reflected in the language system where categories and units interact with each other and make up complex language means. This fact entails the necessity to study extralinguistic as well as linguistic phenomena not separately but in their interaction which in its turn requires the corresponding pattern of research. Analysis of one phenomenon through its interaction with others helps to receive its complete description. In other words, interaction can be regarded as ontological, epistemological and methodological category.

According to A. Bondarko, any conceptual category must reflect some fundamental feature of the objective reality and be conveyed by the system of language units (Бондарко, 1978, 72). As it has been previously stated, alternativeness and antonymy meet these criteria. Alternativeness is defined as the necessity

to choose between several exclusive opportunities (Философский энциклопедический словарь, 1997, 15). Due to the diversity of factors, influencing the inevitability of such choice, alternativeness is considered to be the characteristic feature of human existence. It penetrates into all spheres of everyday life and it finds expression in various language means, the disjunctive conjunctions being the main of them (Склярова, 2012, 52). Antonymy is connected with contrary features of extralinguistic objects, reflected by human consciousness and realized in the opposite meanings of language units on different levels (Боева, 2000). Thus, both alternativeness and antonymy are connected with the essential features of the objective reality and at the same time are expressed in the language in many different ways.

As it has been proved by the previous research work, alternativeness interacts with different semantic categories, such as temporality, quantity, comparison, modality, voice, aspect, reference, location, causation, condition, concession, personality, state and others (Склярова, 2009). Such interaction is actualized in speech when disjunctive conjunctions and language units conveying the meaning of corresponding semantic categories function together. On the one hand, it reveals the interaction of fundamental extralinguistic phenomena, which make up the conceptual basis of the related semantic categories. On the other hand, it displays the variety of alternative situations existing in reality.

The objective of this article is to consider alternativeness and antonymy in the framework of their interaction, realized in the English language.

## 2. MATERIALS AND METHODS

The research is based on the extensive material from authentic sources, in particular,

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fiction books of English-speaking authors, such as D. Aldridge, M. Atwood, T. Capote, J. Chase, J. Cheever, A. Christie, P. Cornwell, L. Elmore, B. Glanville, A. Greely, M. Hardwick, E. Hemingway, L. Irvine, T. Lahaye and J. Jenkins, D. Lawrence, I. Le Carre, M. Meek, A. Perry, I. Salinger, S. Sheldon, D. Steel, J. Tolkien, J. Wain.

The tasks of the study are:

-Explicating the background of interaction of alternativeness and antonymy;

-Determining the form in which this interaction exists in the language;

-Establishing the range of such interaction.

The methods applied in this study are selected in accordance with the objective and tasks of research. The possibility of interaction of alternativeness and antonymy is explained by interconnections between extralinguistic facts underlying these language categories. The variety of their interaction is demonstrated, firstly, with the help of distributional analysis which shows all achievable combinations of disjunctive conjunctions and various types of antonyms, secondly, through contextual analysis which reveals all shades of meanings acquired by disjunctive conjunctions in the particular lexical and grammatical environment, while connecting antonyms.

### 3. RESULTS AND DISCUSSIONS

From the psychological point of view antonymy of language units is connected with the associations, which appear due to contrary experiences of our mind, and under certain circumstances one sensation or idea entails the contradictory one. This is the reason of frequent dual occurrence of antonymous language units in speech. Antonyms regularly function together in constructions with disjunctive conjunctions (Введенская, 1982, 19; Новиков, 1985, 22). It is explained by the fact that the alternative meaning of such connectors as **или, либо** in Russian, *or, either...* or in English, *oder, entweder...* *oder* in German underlines the opposite meanings of antonyms (Введенская, 1973, 22). Besides, the interconnection of alternativeness and antonymy is determined by the fact that the opportunities which are given to people to make a choice between, are often contradictory, while antonymy is the extreme type of contradiction.

Any interaction may be measured in such parameters as form and variety (Муругова, 2007, 76). Interaction of alternativeness and

antonymy is realized in the form of constructions where disjunctive conjunctions connect language units with opposite meanings. On the one hand, the variety of their interaction manifests itself in the types of antonyms which can be found in this position.

The analysis of the English language shows that the following types of antonyms can be joined by disjunctive conjunctions:

- lexical antonyms – notional words of the same part of speech, such as nouns (1), adjectives (2), verbs (3) and adverbs (4):

(1) **Truth or fiction**, it doesn't matter (P. Cornwell, *Body of Evidence*).

(2) **"New or old?"** Marino asked (P. Cornwell, *All That Remains*).

(3) **And yet anyone could mount or descend** as we have done (A. Christie, *The Adventure of the Cheap Flat*).

(4) **That first morning, when I did go back I remember coming in, not looking left or right, feeling them watching me, all of them, everything dead silent** (B. Glanville, *The Thing He Loves*).

Besides antonyms with opposite root morphemes (1-4) the positions of homogeneous members in the construction with disjunctive conjunctions can be occupied by antonyms with opposite prefixes or suffixes (5) and lexemes one of which contains some affix expressing negation of the meaning conveyed by the stem (6, 7):

(5) **Either you exclude or include** this possibility (S. Sheldon, *Morning, Noon, Night*).

(6) **Clothes could be decent or indecent** (M. Atwood, *Bodily Harm*).

(7) ... **And with good reason, for on the bed lay a large suitcase which she had been in the process either of packing or unpacking** (M. Meek, *In Remembrance of Rose*).

- lexical antonyms, belonging to different parts of speech, which were singled out into a separate type by N. Boeva (Боева, 2004, 104):

(8) **You are about as good as she is; and she can dance better than anybody living or dead** (I. Salinger, *The Catcher in the Rye*). - participle I and adjective.

(9) **This is not what Rennie thought she wanted to know. Nor does she appreciate Lora's generosity; nor is Paul a buffet casserole or a spare room, occupied or vacant as the case may be** (M. Atwood, *Bodily Harm*). - participle II and adjective

(10) **Has your experience been different, or the same?** (D. Lawrence, *Aaron's Rod*). - adjective and pronoun.

- morphological antonyms, based on the oppositions of present / past / future tense (11), active / passive voice (12), indicative / subjunctive mood (13). The antonymy of these grammatical forms is determined by the extralinguistic reality and it exists not only in the language system where these forms are opposed to each other making up the paradigm but is displayed in the so called syntagmatic convergence (Боева, 2000, 29, 60) whereas disjunctive conjunctions strengthen their mutual exclusiveness

(11) *Anyone you **know or knew** of who had placed his or her trust in Christ alone for salvation has been taken to heaven by Christ* (T. Lahaye, J. Jenkins, *Left Behind*).

(12) *There's only one law here – **kill or be killed** and I've had direct orders to kill in this case, don't forget that* (I. Higgins, *A Fine Night For Dying*).

(13) *There was indeed a close resemblance between this man and his brother Mathieu; **or would have been**, had not this one's features been so gaunt and strained* (M. Hardwick, *Prisoner of the Devil*).

In the following example antonymy is grounded on the opposition of indicative / subjunctive mood and affirmation / negation:

(14) ***They wouldn't have told**, of course, if he had been kidnapped **or will they?*** (J. Chase, *A Lotus for Miss Quon*).

- syntactic antonyms – predicative constructions generated from the same basic structures, with identical or synonymous lexical composition and opposite grammatical meanings which are revealed by means of negation in one of the structures (15, 16), antonymous connectors, expressing space (17) time (18) or abstract (19) reference, in the exchange of subject / object relations (20). Similar elements in one of the antonymous syntactic units may be partially (15) or fully omitted with the destruction of the predicative core (16) which is possible due to their structural parallelism.

(15) *There was a moment right in the beginning when **they either grabbed control of the situation** and it went smoothly, **or they didn't grab control** and it could turn into a fuck-up with a lot of yelling and jabbing* (L. Elmore, *Gold Coast*).

(16) *He knew that every year too, but this time he would find out **if it was really complete or not*** (D. Aldridge, *Hunter*).

(17) *Was Caleb **in the house or out of the house**, when Lady Ravensbrook came?* (A. Perry, *Cane His Brother*).

(18) *I can't tell you the size of the blade, for example, **whether the injury occurred***

*before or after she was shot...* (P. Cornwell, *All That Remains*).

(19) *As yet we had no opportunity of solidifying the pair aspect of our relationship by **clanning together in a united reaction for or against any other people*** (L. Irvine, *Castaway*).

(20) ***He'll call again. Or you're going to call him*** (P. Cornwell, *All That Remains*).

Thus, the opposite meaning of syntactic units is determined by the presence of antonymous notional and formal words, affirmative and negative verb forms, in other words, the antonymy of language means of other levels (Власова, 1994, 16-17). The contrary meaning of notional words is underlined by parallel constructions:

(21) *It was **a sort of a death too or a sort of a birth*** (D. Lawrence, *Aaron's Rod*).

The described above antonymous units exist in language and may function together in speech. In other words, they belong to the systematic type of antonyms. But the constructions with disjunctive conjunctions also consist of so called non-systematic or "occasional" (Введенская, 1982, 15; Власова, 1994, 35) antonyms, including the following cases:

- contextual lexical (22) grammatical (23) antonyms as well as antonymous units of different levels (24). Their meanings happen to be contradictory in the certain lexical environment and this opposition is intensified in various ways:

(22) *He didn't do it from a psychological point of view; merely as a plain man's guide to the questions that should be **asked or avoided** as the case might be, when the accused stood before the Court* (M. Meek, *In Remembrance of Rose*).

(23) *It is **deal through me or there's no deal*** (I. Le Carre, *The Tailors of Panama*).

(24) ***Whether this began before she decided to write** what she was currently working on **or afterwards**, I can't say with certainty* (P. Cornwell, *Body of Evidence*).

- syntactic antonyms, one of which is expressed implicitly but its meaning is perceived by the listener with the help of the context:

(25) *She can **either hitch up her dress and tuck it onto her underpants**, with everyone watching her, **or [not hitch up her dress and tuck it onto her underpants but]** get it wet and smell like seaweed for the rest of the day* (M. Atwood, *Bodily Harm*).

- syntactic antonyms, one of which serves as a paraphrase of the other, conveying



the opposite meaning descriptively and extendedly. Such antonymous units are not characterized by syntactic parallelism and have different lexical composition:

(26) *At Pencey, you **either froze to death or died of the heat*** (I. Salinger, *The Catcher in the Rye*).

- antonyms of the same or of different levels of the language, one of which is a word (27) or a word combination (28), regarded as a regular means of conveying the idea of contradiction, capable of being antonymous to any language units with the exceptions determined by the rules of combining words:

(27) *We indulged ourselves in one or two highly extravagant food fantasies, made **desultory or otherwise** comments on the fishing, chatted inconsequentially or simply sat in companionable silence* (L. Irvine, *Castaway*).

(28) *“**Bonne on my right, Pebbles on my left** – ”*

***Or was it the other way around?*** (L. Elmore, *Gold Coast*).

The connotations, which disjunctive conjunctions acquire in the certain contextual environment while connecting antonyms, also reveals the variety of interactions of alternativeness and antonymy. According to the general opinion, the meaning of conjunctions is rather abstract and generalized and its particularization occurs in the context while the essential denotation is preserved (Ярцева, 1976, 12). In other words, conjunctions have inherent features and in speech they obtain contextual features (Lakoff, 1970, 150). The analysis of language data shows that connecting antonymous units, disjunctive conjunctions express the following connotative meanings, connected with different types of alternativeness:

- absolute exclusiveness, when antonyms denote situation, which can't coexist at all. This connotation does not have any lexical and/or grammatical indicators; it is understood from the extralinguistic context (Склярова, 2012, 75). Absolute exclusiveness can be observed between various types of antonyms, such as systematic, namely lexical (29), morphological (30), syntactic (31, 32) as well as non-systematic (33):

(29) *Things will **either get worse or better**, but they won't stay the same* (P. Cornwell, *All That Remains*).

(30) *There's only one law here – **kill or be killed** and I've had direct orders to kill in this case, don't forget that* (I. Higgins, *A Fine Night for Dying*).

(31) *Rennie feels that she's been*

*investigated and dismissed, she's been pronounced negligible and this is **either because Paul believes her or because he doesn't*** (M. Atwood, *Bodily Harm*).

(32) *Charisma is something **you have or you don't have*** (P. Cornwell, *Postmortem*).

(33) *Soon he must **either get to shore or be drowned*** (J. Wain, *The Life Guard*).

The idea of absolute exclusiveness may be modified by hypothetic modality which is conveyed by different parts of speech with suppositional meaning as well as by verbs denoting mental activity:

(34) *I think he **got it or maybe he is getting** it now* (A. Christie, *Why Didn't They Ask Evans*).

(35) *Two **possibilities** remain: **it was hidden on board** – also rather difficult – **or it was thrown overboard*** (A. Christie, *The Million Dollar Bond Robbery*);

- enumeration, when antonyms denote situations which do not contradict each other and even coexist. In such cases the meaning of the alternative does not disappear, but it is neutralized. This connotation does not get contextual indicators either, but in such cases the conjunction *or* can be easily substituted by *and* which is sometimes accompanied by some grammatical transformations (Склярова, 2012, 75). The transformational analysis can be very helpful in those cases when linguistic facts can't be explained otherwise (Foss, Hakes, 1978, 38):

(36) *And yet anyone could **mound or descend** as we have done* (A. Christie, *The Adventure of the Cheap Flat*). → *And yet anyone could **mound and descend** as we have done*

The idea of enumeration may be modified by condition (37) or concession (38) in the corresponding clauses (Склярова, 2012, 75):

(37) *If I wait for her or if I decide not to marry her I know I'm going to think pretty soon that it was a mistake* (T. Capote, *Breakfast at Tiffany's*).

(38) *You're a student – **whether the idea appeals to you or not*** (I. Salinger, *The Catcher in the Rye*);

- alternation, when antonyms denote situations or events which take turns, thus excluding each other during the period of realization (Склярова, 2012, 78-79). The language units which modify the meaning of disjunctive conjunctions by the idea of alternation are adverbial modifiers of time, expressed by adverbs with indefinite temporal characteristics, such as *sometimes, seldom, often, always,*

from time to time, the names of months, days of the week, seasons, different dates, word combinations with prepositions *after, before, during*, adverbial clauses of time, introduced by conjunctions *when, while, after, before, till, until*, etc. These contextual indicators state the period or interval of alternation (Склярова, 2012, 239-240):

(39) *During the morning I usually walked in the town or out of the town* (E. Hemingway, *Fiesta*);

- distribution, when antonyms denote qualities or actions, situations or events spread between some amount of animate or inanimate objects in such a way that certain groups of these objects are characterized by particular qualities or actions or are involved into particular situations or events, which excludes other qualities, actions, situations, events (Склярова, 2012, 79). The language units which cause the appearance of this connotative meaning of disjunctive conjunctions are class nouns in the plural form, sometimes accompanied by cardinal numerals, collective nouns, personal pronoun of the third person plural, pronoun *everybody*, substantivized adjectives and participles etc., used in the function of the subject (Склярова, 2012, 242-243):

(40) *Clothes could be decent or indecent* (M. Atwood, *Bodily Harm*);

- motivation, when the second part of the construction with the disjunctive conjunction encourages the occurrence of the situation or event represented in the first part by stating the possible consequences which may arise if this situation or event does not take place. The implicit condition in such syntactic structures is antonymous to the contents of the part preceding the conjunction (Склярова, 2012, 80):

(41) *You do what you're told here or [if you don't do] I'll bust your ass* (S. Sheldon, *If Tomorrow Comes*).

The particular form of the predicate in both parts is determined by the appearance of this connotative meaning of the conjunction. Thus, the first predicate is used in the imperative mood or contains modal verbs *can, should, must, have to*, the construction *to be going to*, conveying necessity, obligation, prohibition, intention, suggestion, recommendation and other meanings which imply direct or indirect demand to fulfill an actions, expressed by non-finite verb forms. The second predicate is used in the future indefinite tense or in the subjunctive mood or in the present tenses expressing future actions, or it contains the construction *to be going to* or modal verbs conveying possibility, probability (Склярова, 2012, 246-248);

- reformulation, when antonyms denote one and the same situation but the latter add precision into its description as the former do not depict the real properly or correctly (Склярова, 2012, 85). It mostly happens with morphological antonyms based on tense (42, 43, 44) and mood (45, 46) distinctions, which make up the necessary environment for the disjunctive conjunctions to acquire this connotation, indicated also by such lexical and syntactic means as *rather, better, at least* etc. They underline that the information presented in the second part of the construction is more preferable or reliable than that, conveyed in the first part (Склярова, 2012, 86). Besides, special punctuation marks such as commas, dashes, help to distinguish this type of alternativeness from others. They show the spontaneous appearance of the antonymous description of the situation in the mind and in the speech of an individual (Склярова, 2012, 83-84):

(42) *Alfred Dreifus is, or rather, was a captain in the French Artillery* (M. Hardwick, *The Prisoner of the Devil*).

(43) *This is someone he loves or once loved* (P. Cornwell, *Postmortem*).

(44) *The best brains in Fleet Street believe it, or they very soon will* (I. Le Carre, *The Tailor of Panama*).

(45) *"Of course I didn't – or wouldn't have if I'd known anything about it."* (A. Christie, *The Nemean Lion*).

(46) *It would appear that we had a miscarriage of justice here. Or we would have had, if we had gone any further* (D. Steel, *Season of Passion*);

- approximation, which consists in the inexact identification of extralinguistic reality due to many reasons, in particular the lack of appropriate background knowledge, obscure and ambiguous perception of the surrounding world, dissatisfaction by the word existing in the language for naming certain things, carelessness of the speaker (Бузаров, Лынова, 1991, 100), absence in the language or in the idiolect of the individual of the correct word to express a certain idea, deliberate imprecise and vague depiction of the situation determined by the etiquette (Шувалова, 1990, 91). In this case the alternative meaning is neutralized and this connotation is expressed by disjunctive conjunctions when they become elements of the set expressions *sooner or later* and *more or less*, the latter being multifunctional as it serves for approximate characteristics of objects (48), qualities (49) and actions (50):

(47) *And sooner or later as he lurked*



*and pried on the borders he would be caught, and taken – for examination (J. Tolkien, The Lord of the Ring).*

*(48) But Mr. Bleibner, I understand, was more or less of an amateur? (A. Christie, The Adventure of the Egyptian Tomb).*

*(49) Underneath the bamboos were nine or ten sheets of corrugated iron full of rust and holes but all more or less the same length (L. Irvine, Castaway).*

*(50) I got it more or less (P. Cornwell, Postmortem).*

## 4. CONCLUSIONS

Interaction of semantic categories of alternativeness and antonymy is revealed in speech in the form of constructions with disjunctive conjunctions and language units with opposite meanings. The variety of this interaction is realized in the connotative meanings the disjunctive conjunctions may acquire while connecting antonyms, in particular, absolute exclusiveness, enumeration, alternation, distribution, motivation, reformulation, approximation. The variety of interaction is also realized in the types of antonyms which may be joined by disjunctive conjunctions, namely, systematic lexical antonyms of the same and different parts of speech, grammatical antonyms based on categorical oppositions of verb forms, syntactic antonyms with complete and compressed structure as well as nonsystematic antonyms appearing in the context. They reflect the divergence of contrary extralinguistic situations which in specific circumstances and due to definite reasons are regarded as alternatives by the speaker.

### Conflict of interests

Authors declare no conflict of interest.

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# TREATING DISCUS HERNIA USING A SELF DEVELOPED METHOD - A NEW TECHNOLOGY WITHOUT SURGICAL INTERVENTION

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**Abstract.** This paper includes an experiment that was performed on a hundred patients by using our self-developed methods during a two year period. The treatment of discus hernia was carried out by using our self-developed methods combined with a completely new technology, as well as clinical biomechanics, chiropractics, massotherapy, thermotherapy, cryotherapy and various other specific exercises practiced in esthetic and orthopedic kinesiology - kinesitherapy.

50 females and 50 males aged 35 to 55 underwent our therapy and the results we obtained display very high curative effects.

**Keywords:** *Discus hernia; Chiropractic; Thermotherapy; Manual massotherapy; Cryotherapy; dzambogal; Esthetic and orthopedic Kinesiology.*

## 1. INTRODUCTION

Discus hernia as a problem of the 21 century. Discus hernia is a side effect of the new lifestyle brought by civilization, and the pandemic emergence of a group of diseases which are caused by insufficient physical activities on the one hand, and a poor diet caused by industrial and other types of unhealthy food on the other. Being a part of nature, humans are born to walk through, conquer and adapt nature to their own needs. If we take into consideration that in the past it was necessary for humans to perform every task using physical force, and that, in order to adjust nature to their needs and to survive, the use of that physical force tended to reach 100%, today

we are witnessing quite the opposite. Instead of the 98% use of physical force, the percentage of physical activities in our contemporary generation tends to drop to zero. Thus, modern humans, that is the contemporary generation, live in a state of idleness, a state of hypokinesis. As a result, degenerative diseases have spread, disrupted and weakened the function of the musculoskeletal frame. These are the so called diseases of civilization known as the various types of skeletal deformations: scoliosis, kyphosis, funnel chest, knock-knee, bow-leggedness, arthrosis, periarthrititis, degenerative diseases, cardiovascular, hormonal and many other types of disruptions to the musculoskeletal frame as well as to other organs and systems, which are generally known as hypokinetic diseases, or diseases arising from insufficient physical activities. Currently, one of the most frequent diagnoses is the spinal condition known as discus hernia.

In our physiotherapeutic research we created a program consisting of different physiotherapeutic procedures. We call this program a prescription for natural treatment of discus hernia - a kinesiological medical treatment for relieving complications caused by discus hernia.

## 2. RESEARCH GOAL AND EXPERIMENT DESCRIPTION

The main research goal is to examine the capacity of our program - prescription for eliminating discus hernia with a completely new and complex physiotherapeutic method - a kinesiological medical method, which is a medical technology that we have developed. The method's purpose, and simultaneously the

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subject of our study, is the treatment of discus hernia in the lumbar area of the human body (L1 to L5 including the sacral part).

The experiment was conducted in the institute for applied kinesiology in Skopje, Republic of Macedonia during 2011, 2012 and 2013 with the participation of a 100 patients, 50 of which were male and the other 50 were female. All patients were diagnosed by radiograph with discus hernia.

## **2.1. Experiment description**

The experiment took place as an intensive rehabilitation program for the duration of six days, while some patients underwent double treatments daily depending on their medical state. The patients in the groups, who were aged 35 to 55 and who willingly underwent the treatment, were divided into subgroups, and the results from our physical program - prescription were analyzed with respect to the improvement of their state of health and the elimination of discus hernia.

Ten to twelve days after the one week treatment, a control treatment was conducted in order to assess the patients subjective opinion on their state of health. With the intention to ascertain the psychophysical changes in the human system, the patients were subjected to psychological and physiological measuring tests before starting the treatment and then again ten to twelve days after finishing the treatment. The psychological measuring tools used in the tests were: test A1 which consists of 80 questions used to measure the patients's anxiousness, test K10 which consists of 40 questions used to measure functional changes of the cardiovascular system and H40 used to measure hypochondria. The obtained results from the first and second measuring were compared in order to mark any changes that might have occurred before and during the patient's treatment.

In terms of the physiological state, the following physiological measuring tools were used: low blood pressure, high blood pressure, respiratory rate and heart rate.

## **3. RECEIVED THERAPY**

### **3.1. Prescription and experiment description**

Every patient was examined initially and their entire medical documentation was

reviewed, and the acquired data was compared with a chiropractic manipulation of a detailed spinal examination, more specifically of the columna vertebralis and medulla spinalis, which was then analyzed in order to determine whether the findings of the entire medical documentation correspond by ascertaining and establishing visual diagnostics. The following step was to determine the correct manner for conducting the treatment, that is, the prescription that consists of a combination of different applications and kinesiological medical interventions, for each individual patient. For this purpose, we used various techniques for manual correction of columna vertebralis and we determined the correct location for applying thermo therapy, which is essentially heated fango or parafango mass, on the entire spine, that is, the cervical and thoracic vertebra on the spot where pain is absent, by adding external heat to the tissue (from the outside toward the inside). We used cryotherapy with surface applications cooled to -20°C, which were then isolated with medical sheets, on the location where the tear had occurred, in order to restore the tear and the bulge in the vertebral canal. The patient, together with the surface applications, was then wrapped in a medical sheet. Next, the patient was covered with a plasticized sheet, with the purpose of containing the body's heat, followed by a wool sheet and then was left to lie still for 20-30 minutes. The temperature reached during thermotherapy is usually between 55°C and 60°C. After the required time had passed the patient was unwrapped, the applications were removed and the whole body was dried from the sweat with a towel. Then we started with massotherapy, which is always strictly programmed and controlled, along the entire spine (if necessary the entire body as well) in order to balance the muscle tone. During massotherapy, the body was laid over with a totally natural cream that we produce, known as «Dzambogal» (Дамбогал), which has a specific positive effect on the regulation of the muscle tone and the circulation of the blood. Finally, we concluded with clinical biomechanical balancing by using chiropractic technology, followed by special orthopedic exercises designed to strengthen the paravertebral musculature and restore the normal elasticity and psychophysical strength to the organism.

### 3.2. Proper prescription - program

(kinesiological-physiotherapeutic)

The patients, which were divided into subgroups of which 50 were male and 50 were female, were subjected to the following procedures:

Table 1. Divided patients into subgroups

THERAPY	DURATION
1. THERMOTHERAPY	20-30 minutes
2. CRYOTHERAPY	10-15 minutes
3. MASSOTHERAPY	10-15 minutes
4. CHIROPRACTICS	As needed
5. Medical - kinesiological exercises (esthetic and orthopedic kinesitherapy)	As needed

### 4. PURPOSE OF THERAPY

1. Muscle tone regulation with respect to the entire spine;
2. Complete restoration of columna vertebralis to its normal biomechanical state by using chiropractic, a manual medical intervention;
3. Restoration of muscle strength and elasticity to the entire musculoskeletal frame;
4. Amplitude normalization of the entire body's motions;
5. Individual elimination of any pressure on the peripheral nervous system - starting with the atlas and ending with the sacral region;
6. Elimination of pressure where the tear had occurred on medulla spinalis and restoring the bulge in the vertebral canal by applying local cryotherapy;
7. Expansion of the thoracic vertebrae with thermo therapeutic applications, vacuum-assisted bulge withdrawal by using cryotherapy on the injured lumbar part and restoration of medulla spinalis to its proper physiological state in the vertebral canal;
8. Patient preparation for home use of kinesiological - medical orthopedic exercises.

### 5. TASKS OF THE EXPERIMENT

1. Educating patients to use healthy food as much as possible in their everyday life by avoiding large quantities of industrial food is the primary task we have set in this research;
2. Regularly using kinesiological activities and medical exercises in everyday life complemented with optional frequent walking prior to the exercises so that the patients wouldn't forget that they also have legs;

3. Regulating body mass and volume, as well as elasticity, mobility and amplitudes of motion so that such degenerative diseases do not recur;

4. Educating patients that they should not wait and endure pain for too long and should seek medical assistance as soon as possible.

### 5.1. A short description of the applications

**Thermotherapy** - The goal with thermotherapy is to assist the blood flow regulation by adding external heat to the organism (from the outside to the inside), more specifically, to the musculoskeletal frame. This will cause the biomechanical function of the spine to normalize, which, combined with cryotherapy, will allow for a vacuum-assisted withdrawal of the medulla spinalis bulge - the section with discus hernia - in the vertebral canal, and thus normalize the physiological function of the nerve.

**Cryotherapy** - The goal with cryotherapy is to extract heat from the organism (from the inside to the outside) and cause vasoconstriction in the soft tissue - constricting the bulge and restoring it in the vertebral canal, that is to say, withdrawing the bulge in order to eliminate any mechanical obstacles and prevent any physical contact.

**Massotherapy** - The goal of the programmed massotherapy is to allow for unimpeded nutrition of the spine and to regulate the muscle tone. Thus allowing the bioelectric motor commands from the central nervous system to reach the rest of the organism unobstructed.

**Chiropractic** - The goal of chiropractic, together with massotherapy, is to set the columna vertebralis - the spine in a normal biomechanical position.

**Medical exercises** - The goal of these exercises, in their functional, biomechanical and esthetic sense, is to restore muscle strength, soft tissue elasticity and motion amplitude in all directions.

### 6. MEASURING TOOLS

The following psychological tools were used: test A1 which consists of 80 questions used to measure the patient's anxiousness, test K10 which consists of 40 questions used to measure functional changes of the



cardiovascular system and H40 used to measure hypochondria. The obtained results from the first and second measuring were compared in order to mark any changes that might have occurred before and during the patient's treatment.

## 7. OBTAINED RESULTS AND DISCUSSIONS

We can notice a significant statistical difference in the obtained results of all three measuring tools which were compared and analyzed with adequate mathematical methods. The results were orderly recorded before starting the therapy and then again 20 days after finishing the therapy. The perceivable changes, occurring during the start and the finish of the therapy sessions, display significant statistical data which confirm that under the influence of objective motoric-functional changes, the patients' perceptions also change. This means that the organism's proper functional and physiological performance also caused positive and efficient psychological changes, whose origin, we can prove, can be attributed to the influence of our therapy. In other words, positive psychological changes are the result of qualitative physiological and functional changes and the end result is the elimination of pain and the patient's positive feeling.

We also noticed other changes present in the functional measuring tools such as blood pressure, heart rate and respiratory rate.

The obtained results were processed by using multivariable and factor analyses methods, however they are not included in this study because of the sheer size of the findings.

Nevertheless, this research confirms that our work method, that is, the technology and the methodology for eliminating discus hernia without a surgical procedure, resulted with highly curative effects. The obtained results show that 90% of the patients achieved an excellent psychophysical state after the 20<sup>th</sup> day, 7% still experienced certain discomfort and were offered to continue the treatment with 6 to 10 sessions twice a week, and 3% were still experiencing pain and were counseled to undergo a surgical procedure.

## 8. CONCLUSION

This study confirms the premise that the technology and the methodology we have proposed demonstrating efficiency and a highly curative effect. We can observe the positive changes occurring in the central nervous system (the latent space), and in the musculoskeletal system (the manifest space).

The Swift curative effect is due to the biomechanical spine correction, that is, the restoration of columnna vertebralis in its normal physiological state. First and foremost, the therapy takes effect through the integration of soft tissue in the regulation of dissimilar muscle tone and the restoration of muscle strength and elasticity, as well as through the biomechanical ratio of columnna vertebralis in its normal physiological state.

If we take into consideration the general psychophysical health improvement, which is confirmed by the obtained results of our prescription - the physical program for treating discus hernia, we can recommend this method for wide public use in order to treat this bitter problem of our modern civilization. In our study, out of 100 cases, the patient's condition improved in 90% of them, 7% experienced partial improvement and 3%, judging by the severe tissue damage, were advised to undergo surgery. When asked how they felt during and after the treatment, the patients' answers show similarity with the aforementioned results.

Our final conclusion is that this self-developed programmed method of ours for treating discus hernia can be practically applied in all specialized centers for chiropractic physical medicine, and that with the addition of combined nutrition we can achieve highly curative effects.

### Conflict of interests

Authors declare no conflict of interest.

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# THE RELATIONS BETWEEN MORPHOLOGICAL SPACE AND THE ATHLETES' JUMPING AND THROWING EVENTS RESULT

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**Abstract.** The sample included 200 primary school students in the region of Prokuplje, male, aged 13 and 14 years, who, in addition to regular physical education classes, were included in the sports clubs training activities. The variables sample included 13 anthropometric measures as a set of predictors and four specific-motor tests of jumping (high jump and long jump) and throwing events (shot put and javelin), as well as a set of criteria. The aim of this research was to examine the relation of morphological characteristics with the jumping and throwing events results, with elementary school students as athletes. Determining the relations and influence between the morphological characteristics and the specific motor skills was obtained by applying the canonical-correlation and regression analysis. The research of canonical correlation analysis results showed that there are statistically significant interlinks between canonical factors of morphological dimension Can. 0.81% ( $p = .000$ ) and the results of examinee's specific-motor skills in a long running jump, running high jump, shot put and javelin. Regression analysis results show that the morphological dimensions have an important prediction of the results of examinee's specific-motor skills.

**Keywords:** *Morphological characteristics, Specificmotor skills, Athletes.*

## 1. INTRODUCTION

Athletes' development of anthropological characteristics and the increase of motor skills level should start with determining the current state of abilities and characteristics in order to properly execute the planning, programming, work implementation and analysis of the effects of the training process. Application of transformation exercise processes is possible only if we know the level of anthropological characteristics and motor skills involved in the success of a motor activity,

and their mutual relations in order to realize which program content, methods, and loads can help to achieve adaptation processes in the most optimal way (Kukolj and associates 2001, Pržulj 2006). The development of skills and characteristics (according to Krsmanovic 2007, Željaskov 2003, Bjekovic 2008) can be achieved most successfully in the so-called "Sensible stages," which are periods of ontogenesis, when, based on natural laws, the most significant rate of development of certain skills and characteristics is achieved, the adaptive capabilities in relation to exogenous factors are increased and favorable conditions for the acquisition of certain motor skills are established. Successful selection of future athletes, athletic performance improvement of individuals and sports teams can be achieved only through scientific research in the field of sports and sports training. In most countries, whose athletes achieve significant results, the sport science is on the high level. Scientific knowledge obtained during research in the field of sports is applied, primarily in the analysis of sports results and the conditional readiness degree. Based on these data, preparations for future competitions are planned and programmed.

Having in mind that a sports training is complex in its structure because the transformations take place in the space of morphological, functional and motor space that belong to the multi-dimensional dynamical systems, it is necessary to analyze the anthropological characteristics of athletes more thoroughly and accurately. To this end, it is important in order to apply appropriate scientific procedures to determine the structures of dimensions, their relations and development principles, and policies providing direction and control of the work effects. In addition, it is important to establish a reliable measuring instruments for monitoring and measuring the changes of dimensions that are to be achieved by using the resources of physical exercises. Accordingly,

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the results of this research should show that the dimensions of morphological characteristics contribute to jumper's efficiency results (high jump, long jump) and throwing events (shot put, Javelin) applied to primary school athletes.

## 2. METHODS

The aim of this study was to determine the relation of morphological characteristics with the primary school athletes' jumping and throwing events results. The sample included 200 primary school students in the region of Prokuplje, male, aged 13 and 14 years, who, in addition to regular physical education classes, were incorporated into the sports clubs training activities.

The variables sample included 13 anthropometric measures as a set of predictors: body height (AVIS), length of legs (ADUN), length of an arm (ADUR), shoulder width (ASRA), width of the pelvis (ASKA), hip width (ASKU), volume of the upper arm (AONL), thigh volume (AONK), the maximum lower leg volume (AOPK), body mass (AMAS), upper arm skin fold (AKNNL), abdominal skin fold (AKNT) and thigh skin fold (AKNNK).

Four specific-motor tests of jumping and throwing events as a set of criteria: running long jump (SKDA), a running high jump (SKVI), shot put (BCKU) and javelin (BKOP).

Determining the relations and influence between the morphological characteristics and the specific motor abilities was achieved by applying the canonical-correlation and regression analysis.

## 3. RESEARCH

### Canonical correlation analysis

Table 1. Canonical correlation analysis of the examinees

	Can. R	R <sup>2</sup>	Chi-sqr.	df	p
0	0.81	0.65	155.65	74	.000

The results of canonical correlation analysis show (Table 1) that in the relations between the predictor systems, consisting of anthropometric measures to assess the morphological characteristics and criteria made of the variables for assessment of jumping (a long jump and a running high jump) and

throwing events (shot put and javelin), we got a statistically significant canonical factor (R) which indicates, with 81%, the size of the correlation coefficient, which is confirmed by the percentage of common variance of the determination coefficient (R<sup>2</sup>) for both sets of variables with 65%. Given the size of the canonical correlation coefficient and the common variance, it can be concluded that the results of the examinees in the jumping and throwing events will be manifested largely depending on their morphological space. Canonical root was statistically significant at the level of  $P = .000$ .

Table 2. Canonical factors of examinees' anthropometric measures

Variable	Root 1
AVIS	-0.89
ADUN	-0.79
ADUR	-0.80
ASRA	-0.86
ASKA	-0.83
ASKU	-0.82
AONL	-0.72
AONK	-0.75
AOPK	0.60
AMAS	-0.75
AKNNL	-0.50
AKNT	0.47
AKNNK	0.58

In Table 2, anthropometric measures of skeleton's longitudinal dimensionality, skeleton's transversal dimensionality, circular dimensionality and body mass have the most projection to the canonical factor, and therefore condition results at the most in all jumping and throwing events tests. Measures of subcutaneous adipose tissue have somewhat smaller but significant impact on the manifestation of the examinees' results in jumping and throwing events.

Table 3. Canonical factors of examinees' criterion

Variable	Root 1
SKDA	-0.66
SKVI	-0.52
BCKU	-0.93
BKOP	-0.62

In Table 3, the obtained results indicate the large projection of jumping and throwing events on canonical factor. Canonical factor of specific motor performance in jumping and throwing events is best defined by shot put (BCKU = -0.93) and long jump (SKDA = -0.66) assessing tests. The effectiveness of performing these specific-motor skills obviously strongly is dependent on the longitudinal and transversal dimensionality factor.

Table 4. Cross correlation analysis of anthropometric measures and results in jumping and throwing events

Variable	SKDA	SKDI	BCKU	BKOP
AVIS	.36	.41	.51	.44
ADUN	.43	.38	.46	.40
ADUR	.13	.33	.20	.26
ASRA	.10	.16	-.18	.14
ASKA	-.31	.30	.42	-.35
ASKU	-.29	.35	-.26	-.20
AONL	.11	-.12	.09	.01
AONK	.09	-.05	.03	.02
AOPK	.12	.14	.09	.08
AMAS	.22	.30	.28	.25
AKNNL	.26	.26	.29	.30
AKNT	-.20	-.23	.20	.28
AKNNK	-.33	.26	.31	.29

From the cross correlation anthropometric measures matrix and the examinees' performance results of the specific-motor skills (Table 4), we can see different levels of correlation coefficients. The body height (AVIS), legs length (ADUN) and the width of the pelvis (ASKA) significantly contribute to the success in specific-motor skills.

### 3.1. Regression analysis

Table 5. Regression analysis of morphological characteristics predictor system running long jump (SKDA)

RO	DELTA	F-test	Q
.80	.64	3.07	.005

Build on the value of multiple correlation coefficients (RO = .80), in Table 5, it can be concluded that the morphological characteristics (as predictor system) at the multivariate level, significantly explain (Q = .005) the results achieved in the long jump (SKDA).

The determination coefficient of criterion variable (DELTA) and the anthropometric measures system has 64% of common relations. The remaining 36% of common variability in explaining the criterion variable are

included in the other anthropological space dimensions which were not the subject of research in this study.

Table 6. Regression analysis of predictor anthropometric measures and criteria running long jump (SKDA)

VARIABLE	R	Part-R	Beta	Std. Err.	t	Q
AVIS	.65	.31	.67	.29	3.31	.020
ADUN	.44	-.01	-.31	.16	-2.72	.040
ADUR	.61	.02	.27	.42	2.18	.050
ASRA	.54	-.04	-.09	.29	-0.33	.740
ASKA	.53	.03	.07	.32	0.24	.800
ASKU	.52	-.10	-.19	.27	-0.69	.480
AONL	.31	-.13	-.28	.31	-2.80	.044
AONK	.58	-.12	-.29	.34	-3.83	.002
AOPK	.11	.07	.05	.10	3.49	.012
AMAS	.58	.23	.29	.30	2.86	.026
AKNNL	.63	-.06	-.17	.39	-0.43	.230
AKNT	-.65	-.20	-.43	.29	-1.46	.140
AKNNK	.51	-.13	-.28	.31	-0.90	.370

Results of partial regression coefficients (Beta) and its significance Q (Beta) on the univariate level (Table 6), indicate that a statistically significant relations with the criterion variable have predictor anthropometric measures of longitudinal skeleton dimensionality: body height (AVIS), legs length (ADUN) length of the arm (ADUR) and circular dimensionality of the skeleton and body mass: volume of the upper arm (AONL), thigh volume (AONK), the volume of the leg (AOPK) and body mass (AMAS).

Table 7. Regression analysis of predictor system of morphological characteristics and criterions a running high jump (SKVI)

RO	DELTA	F-test	Q
.79	.62	3.02	.015

Build on the value of the multiple correlation coefficients (RO = .79), in Table 7, it can be concluded that the morphological characteristics (as predictor system) at the multivariate level, statistically significantly explain (Q = .015) the results achieved in the high jump (SKVI).

The determination coefficient of criterion variable (DELTA) and anthropometric measures system has 62% of common relations. The remaining 38% of common variability in explaining the criterion variable are included in the other anthropological space dimensions which were not the subject of research in this study.



Table 8. Regression analysis of predictor anthropometric measures and criteria running high jump (SKVI)

VARIABLE	R	Part-R	Beta	Std. Err.	t	Q
AVIS	.65	.31	.04	.29	2.31	.030
ADUN	.44	-.01	-.01	.16	-2.59	.020
ADUR	.61	.02	.07	.42	3.05	.010
ASRA	.38	.15	.04	.01	0.87	.382
ASKA	-.45	.15	-.01	.04	-0.93	.363
ASKU	.75	.19	.01	.02	.049	.619
AONL	-.56	.19	-.00	.01	-0.46	.642
AONK	-.66	.15	-.01	.01	-0.52	.599
AOPK	.20	.18	.02	.04	0.65	.508
AMAS	-.58	.12	-.01	.01	-1.40	.161
AKNNL	.20	.19	.02	.01	2.05	-.012
AKNT	-.65	-.20	-.43	.29	-3.46	-.002
AKNNK	.51	-.13	-.28	.31	-2.90	-.023

Results of partial regression coefficients (Beta) and its significance Q (Beta) on the univariate level (Table 8), indicate that a statistically significant relations with the criterion variable have predictor measures of longitudinal skeleton dimensionality: body height (AVIS), legs length (ADUN) and length of the arm (ADUR)

Table 9. Regression analysis of predictor system of morphological characteristics and criteria a shot put (BCKU)

RO	DELTA	F-test	Q
.61	.37	2.99	.022

Build on the value of the multiple correlation coefficients (RO = .61), in Table 9, it can be concluded that the morphological characteristics (as predictor system) at the multivariate level, statistically significantly explain (Q = .022) the results achieved in the shot put (BCKU).

The determination coefficient of criterion variable (DELTA) and anthropometric measures system has 37% of common relations. The remaining 63% of common variability in explaining the criterion variable are included in the other anthropological space dimensions which were not the subject of research in this study.

Table 10. Regression analysis of predictor anthropometric measures and criteria shot put (BCKU)

VARIABLE	R	Part-R	Beta	Std. Err.	t	Q
AVIS	.15	.31	.67	.29	4.35	.001
ADUN	.14	-.01	-.05	.16	-3.49	.013
ADUR	.11	.02	.04	.42	2.28	.045
ASRA	.14	-.04	-.03	.29	-0.53	.031
ASKA	.11	.03	.17	.32	0.64	.042
ASKU	.15	-.10	-.29	.27	-0.49	.036
AONL	.41	-.13	-.28	.31	-3.84	.020
AONK	.58	-.12	-.29	.34	-3.42	.040
AOPK	.11	.07	.05	.10	3.16	.050
AMAS	.58	.23	.49	.30	3.65	.030
AKNNL	.63	-.06	-.17	.39	-0.43	.230
AKNT	-.65	-.20	-.43	.29	-1.46	.340
AKNNK	.51	-.13	-.28	.31	-0.90	.370

Results of partial regression coefficients (Beta) and its significance Q (Beta) on the univariate level (Table 10), indicate that a statistically significant relations with the criterion variable have predictor variables of longitudinal skeleton dimensionality: body height (AVIS), legs length (ADUN) arms length (ADUR); transversal skeleton dimensionality: shoulder width (ASRA), width of the pelvis (ASKA), hip width (ASKU) and circular skeleton dimensionality and body mass: volume of the upper arm (AONL), thigh volume (AONK), lower leg volume (AOPK), body mass (AMAS).

Table 11. Regression analysis of predictor system of morphological characteristics and criteria javelin (BKOP)

RO	DELTA	F-test	Q
.90	.80	8.88	.000

Build on the value of the multiple correlation coefficients (RO = .90), in Table 11, it can be concluded that the morphological characteristics (as predictor system) at the multivariate level, statistically significantly explain (Q = .000) the results achieved in the javelin (BKOP).

The determination coefficient of criterion variable (DELTA) and the system of motor variables have 80% of common relations. The remaining 20% of common variability in explaining the criterion variable are included in the other anthropological space dimensions which were not the subject of research in this study.

Table 12. Regression analysis of predictor anthropometric measures and criteria javelin (BKOP)

VARIABLE	R	Part-R	Beta	Std. Err.	t	Q
AVIS	.15	.31	.67	.29	1.35	.300
ADUN	.14	-.01	-.01	.16	-0.09	.320
ADUR	.11	.02	.07	.42	0.18	.400
ASRA	.34	-.04	-.09	.29	-3.33	.009
ASKA	.43	.03	.07	.32	3.64	.005
ASKU	.22	-.10	-.19	.27	-3.49	.006
AONL	.11	-.13	-.28	.31	-2.80	.012
AONK	.12	-.12	-.29	.34	-2.83	.014
AOPK	.11	.07	.05	.10	2.43	.013
AMAS	.13	.23	.49	.30	2.65	.011
AKNNL	.13	-.06	-.17	.39	-0.43	.130
AKNT	-.15	-.20	-.43	.29	-1.46	.330
AKNNK	.11	-.13	-.28	.31	-0.90	.370

Results of partial regression coefficients (Beta) and its significance Q (Beta) on the univariate level (Table 12), indicate that a statistically significant relations with the criterion variable have predictor variables of transversal dimensionality: shoulder width (ASRA), width of the pelvis (ASKA) and hip width (ASKU) and circular skeleton dimensionality and body mass: volume of the upper arm (AONL), thigh volume (AONK), lower leg volume (AOPK), body mass (AMAS).

## 4. CONCLUSION

The research was undertaken with the aim to determine the relations between the morphological space and jumping and throwing events.

Based on the research results, interpretation and discussion we can conclude the following:

1. There is a statistically significant canonical correlation ( $p = .000$ ) between the anthropometric measures of morphological dimensions and the results of jumping and throwing events. The results showed that one canonical factor was distinguished which is statistically significant and accounts for this connection between the set of predictors and the set of criterion variables.

1.1.A statistically significant multiple correlations ( $Q = .005$ ) was determined between the morphological dimensions measures and the running long jump results.

1.2.A statistically significant multiple correlations ( $Q = .015$ ) was determined between the morphological dimensions and the running high jump results.

1.3.A statistically significant multiple correlation ( $Q = .022$ ) was determined between the morphological dimensions measures and the shot put results.

1.4.A statistically significant multiple correlations ( $Q = .000$ ) was determined between the morphological dimensions measures and the javelin results.

## Conflict of interests

Authors declare no conflict of interest.

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## EEG INTERFACE MODULE FOR COGNITIVE ASSESSMENT THROUGH NEUROPHYSIOLOGIC TESTS

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**Abstract.** The cognitive signal processing is one of the important interdisciplinary field came from areas of life sciences, psychology, psychiatry, engineering, mathematics, physics, statistics and many other fields of research. Neurophysiologic tests are utilized to assess and treat brain injury, dementia, neurological conditions, and useful to investigate psychological and psychiatric disorders. This paper presents an ongoing research work on development of EEG interface device based on the principles of cognitive assessments and instrumentation. The method proposed engineering and science of cognitive signal processing in case of brain computer interface based neurophysiologic tests. The future scope of this study is to build a low cost EEG device for various clinical and pre-clinical applications with specific emphasis to measure the effect of cognitive action on human brain.

**Keywords:** Cognitive Assessment, EEG, Brain, Neurophysiologic Tests, EEG Device, Brain Computer Interface.

### 1. INTRODUCTION

In different cognitive studies, brain waves have their own importance and usefulness for the estimation of variations in cognitive states parameters in study of stress, workload, emotion, neural activities, neurological disorders etc (Hamid at all, 2010; Lisetti and Nasoz, 2004; Lisetti and Nasoz, 2004; Knoll at all, 2011). In view of psychophysiology, the most suggested way of experimentation is based on cognitive test batteries (Gualtieri and Johnson, 2006; Ladner, 2008) which

bias subjects towards the aim of experimental protocol in order to get the accurate and good results, however the tests must be distinct for different cases and properly investigated by psychologists for best suitability.

Neurophysiologic tests (Schuhfried at all, 1985) are designed to investigate a variety of cognitive functioning, including attention, memory, language, speed of information processing and executive functions, which are important for aimed behavior. Through neurophysiologic testing, a neurophysiologist can make conclusions about underlying brain function. As Neurophysiologic testing play a less essential role in localization of brain abnormalities, clinical neurophysiologist found new uses for their knowledge and skills. By identifying which cognitive abilities are preserved or impaired in subjects with brain illness or injury, neurophysiologists can declare how well subjects will respond to various forms of treatment or rehabilitation. Although patterns of test scores serve as example profiles of cognitive weakness and strength, neurophysiologists can also learn an excellent deal about subjects by observing how they come near to a particular test.

While neurological examination CT, MRI, EEG and PET (Dietrich and Kanso, 2010) scans look at the structural, physical, and metabolic condition of the brain, the neuropsychological examination is the only way to formally assess brain function. Neuropsychological tests extend over the range of cognitive processes from simple motor performance to problem solving and complex reasoning.

Among all these techniques, EEG is the best neuroimaging technique taking all of reliability, cost effectiveness, temporal resolution,

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data portability and system mobility perspectives in consideration so it is majorly being used for BCI applications.

## 2. GENERAL STRUCTURE

The general structure of a BCI (Brain Computer Interface) is following:

### A. Signal Acquisition

The EEG signals are obtained from different regions of scalp through non-invasive EEG channels. After that, the signal is amplified and sampled for further analysis procedures. Some of the famous EEG acquisition systems are Neuroscan, EGI geodesic, Brain-Vision, RMS maximus, Biopac, Emotiv etc.

### B. Pre-Processing

It is necessary to recover original EEG signal for analysis from acquired signal (amplified/modulated) via various methods such as normalization, filtration and transformation.

The power of the scalp EEG can vary between different subjects due to several factors, including also anatomical characteristics. For this reason, it is necessary to have a way to account for differences in broad-band power across subjects. This can be achieved with different normalization approaches.

To remove linear trends, it is often desirable to high-pass filter the data. For power line noise removal we use notch filter. for different noise frequency bands we can use appropriate band stop filters. Some of the main pre-processing methods/tools are normalization, filtering, wavelet, ICA, PCA, etc (Lakshmi, 2014).

### C. Feature Extraction

We can't consider the huge time domain data points of EEG to operate a microcontroller/processor to perform the desired action so we select few appropriate features of the data like power, energy, entropy, fractal dimension etc. This feature is calculated for a fixed time segment and fed to processor for classification. For example, suppose we use 32 channel EEG system with 1000 Hz sampling rate for BCI operation and power as feature. If we fix one second data segment, it will select blocks of 1000 data points during data acquisition and will operate queuing for processing. The Fourier transform is also widely used in the applications of spectrum analysis because it takes a time domain discrete signal and transforms into frequency domain discrete

signal. Hilbert transform is also a very useful transform in EEG feature extraction. Some of the most common features are power, energy, normalized power, entropy, amplitude, latency, fractal dimension, sample entropy, Largest Lyapunov exponent etc (Yin and Cao, 2011; Napoli and Barbe, 2012; Tonga and Bezerianos; 2002).

### D. Classification

Classifiers are used for classifying the pattern/class of the features extracted from the segments. Classifiers may be supervised or unsupervised. Supervised means that it is designed with some defined parameters and trained with some data sets which is going to be classified while unsupervised classifiers are just like for bifurcation. The extracted features are fed through queuing to the classifier and send the class with most matching pattern then the respective task is performed. Classifiers are also considered as trained machines. The Machine learning deals with programs that learn from experience, i.e. programs that improve or adapt their performance on a certain task or group of tasks over time. Machine learning is training a machine to separate the data given for testing on basis of data given for testing based on certain features. A classifier can be considered as a class/dimension reducer. Some most common classifiers are ANN, kNN, SVM, k-means clustering, GMM, HMM etc (Mohandas and Gerropati, 2003; Lotte, 2007; Sulaiman at all, 2011; Cortes and Vapnik, 1995).

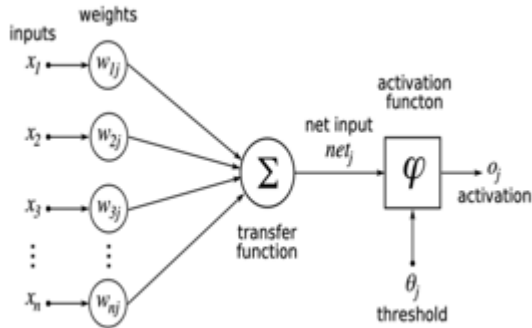
### ANN (Artificial Neural Network)

Artificial neural networks are supervised classifiers which need to train before operation. They are developed on the basis of real neural networks underlying brain. Artificial neural networks are used for pattern recognition; data management and learning process similar to brain. They are made up of artificial neurons which give the concept of biological neurons and accept a number of inputs. Each input layer connected by weighted synapses. A neuron also has a specific threshold value. If the sum of the weights is greater than threshold value, the neuron stimulated. The activation function gives output of the neuron which will be the result of the problem and can be fed as input for the other neuron. A number of neurons are connected together to execute an artificial neural network which is arranged on different layers. A neural network divided in to input layer (which takes the values of input variables) and output layer (the predictions of



the result) and hidden layers of neurons, which play important role in the network as hidden functioning takes place. The figure 1 gives a schematic of an artificial neural network.

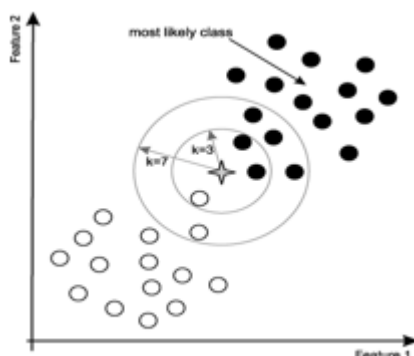
Figure 1. ANN Classifier



kNN (k-Nearest Neighborhood)

k-Nearest Neighborhood is also a type of supervised learning. kNN is moderate straight forward classifier and data are classified on the basis of class of their nearest neighbors. It is often useful to take more than one neighbor into account so the technique is referred to as k-Nearest Neighbor (k-NN) classification where k nearest neighbors are utilized in determining the class. Since the training examples are needed at run time, i.e. they need to be in memory at run time; it is sometimes also called memory based classification. Because induction is delayed to run time, it is considered as lazy learning technique. Because classification is directly based on the training an example that is why also called example-based classification or case-based classification. A simple illustration of kNN is shown in figure 2.

Figure 2. k-NN Classifier

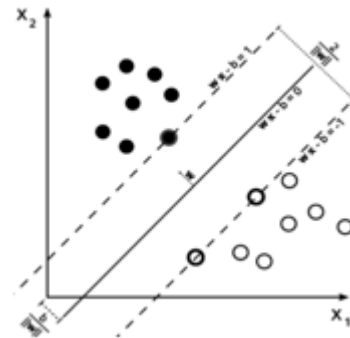


SVM (Support Vector Machine)

It is an example of supervised machine learning. The support vector machine (SVM) algorithm is probably the most widely used kernel learning algorithm. It achieves

relatively robust pattern recognition performance using well established concepts in optimization theory. The main plan of the trained SVM algorithm is to select new data position in a category. The svmclassify function classifies each row of data in sample using the information conveyed in the structure of support vector machine classifier svmstruct, created using function svmtrain. The figure 3 shows a simple structure of SVM.

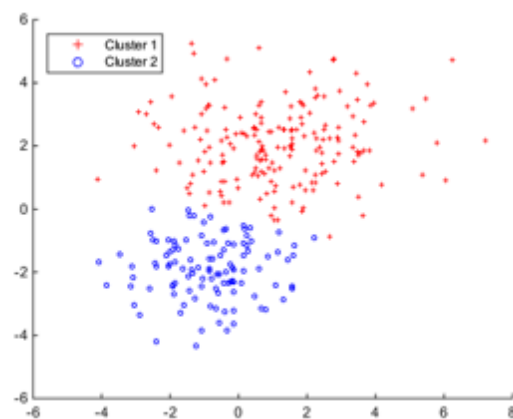
Figure 3. SVM Classifier



(GMM) Gaussian Mixture Model

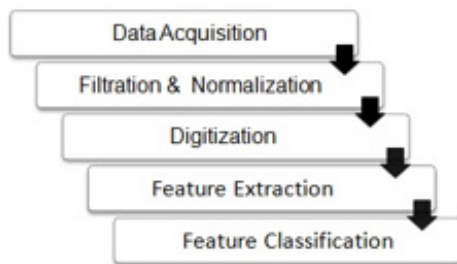
It is an example of unsupervised learning. Gaussian mixture models are the combination of multivariate normal density components. In GMM soft data clusters are assigned by choosing the component that maximizes the posterior probability. GMM may be more suitable than k-means clustering when clusters of different sizes having correlation between them. Following figure shows the clustering by GMM.

Figure 4. GMM Classifier



The overall EEG signal processing steps are shown in figure 5.

Figure 5. EEG signal processing steps



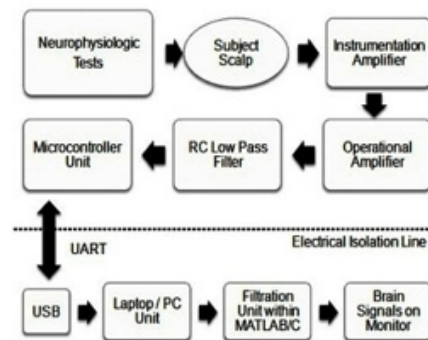
### 3. THE DEVICE MODULE

The main motivation is to build a brain-computer interface for neurophysiologic assessment of different parameters during various cognitive biasing tests. As per results of various studies, the most utilized and easiest way of measuring brain waves would be EEG to record potential difference across different locations on the scalp. Our attention is confined on implementation of two-stage amplification and filtering circuits. Besides, we use the built-in analog to digital conversion functionality of the microcontroller in order to give good quality digital signal as result. The optoisolated universal asynchronous receiver/transmitter sends the digital values from ADC over USB/UART to a PC/Laptop unit connected to the micro-processor or microcontroller. The PC/Laptop executes all the preprocessing, transformation, feature extraction, machine learning and task performing algorithms on C/MATLAB/SciLab/Python/Simulink or other platform (Sharma and Gobbert, 2010) using few microprocessors and microcontrollers.

The structure of the device proposed consists of an amplifier circuitry consisting of an instrumentation amplifier (the common-mode noise ratio is evaluated using a right-leg driver attached to the subject's ear lobe or mastoid, along with an operational amplifier and some filters (for removal of DC offsets, 50 Hz powerline interference, and other noise artifacts). In the next step, the signal passes to the microprocessor/microcontroller unit, where it is digitized via an analog to digital converter. Now, it is send over an USB/UART connection to a PC/Laptop. The PC/Latop unit then per-forms signal processing in MATLAB/C and is proficient to output the final results (brain wave parameters energy, power spectral density, root mean square value, entropy etc. for different bands alpha, beta, gamma etc.) to

the user. The other alternatives of MATLAB are GNU Octave, Sage, FreeMat, R etc. but due to some additional features such as fast prototyping, more functions, concise coding and sufficient documentation MATLAB is more preffered (Verma at all, 2012). A functional block dia-gram of the overall structure is shown in figure 6.

Figure 6. Device Module Schematic



### 4. CONCLUSIONS

This study concludes the requirement and present scenario of BCI development. It includes the implementation of a low cost device to access the different cognitive parameters like stress, workload, emotion, neural activities, neurological disorders etc. in various cases as per described by neurophysiologic tests. The BCIs may play very critical role in rehabilitation as well as cognitive enhancement. It also presents a general structure and module for a low cast BCI system development.

#### Conflict of interests

Authors declare no conflict of interest.

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## DELINQUENT BEHAVIOUR OF CHILDREN FROM DYSFUNCTIONAL FAMILIES

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**Abstract.** The subject of my research in the paper is the children from dysfunctional families, primarily their delinquent behavior, education and moral, actually, who takes care of them and who undertakes the family roles and whether this care is sufficient for building these personalities.

This research approaches towards the study of the delinquent behavior of children from dysfunctional families. It examines to what extent the educational level of parents, the material condition, the health condition, the leisure time, the average monthly income of the family, the available permanent goods, the educational resources, the social communications within the very family, all affect the delinquent behavior of children from dysfunctional families.

**Keywords:** *Family, Delinquency, Children, Behavior.*

### 1. INTRODUCTION

Children, young people, personalities in a stage of development and their position in the society, the engagement in the society for creation of conditions of their development into creative persons, is the best indicator about the level of care of the society for its future, but also for its humanistic development and development that implies harmonization of the living conditions in the reached degree of civilization development of the modern society. On this basis and in accordance with these demands, the most important International documents were created, that strive to guarantee the legal, the social, the economic, the socio-cultural position of young people in the society, such as the Convention of the Rights of the Child. The obligations that it imposes to all signatory countries is primarily aimed,

through care, assistance, protection, education, supervision and control, to provide their proper development into personalities which in accordance with the governing norms in the society will be confirmed as personalities, and when the development is disordered and it takes place in wrong directions, to eliminate the factors with negative impact.

Subject of my research are children from dysfunctional families, primarily their delinquent behavior, education and moral, actually, who takes care of them and who undertakes the family roles and whether this care is sufficient for building these personalities.

The basic cell where the young person (the child) is born, exists, lives and develops, is the family and through the family the basic functions related to the creation and the development of the child are established. The family represents the basic cell of the society, with obligations within itself and in direction of realization of the **bio-physical functions, the economic-social functions, the pedagogic-educational and supervisory functions, the functions of protection** and security of the life of the child, and the society on the other side, the obligations of the family as a primary social group, as its base, to provide conditions for the family to successfully realize its basic functions.

**The functions that are entrusted to the family are complementary and the family is confirmed only through simultaneous, complex and connected realization of all functions, bio-physical and reproductive, social-economic pedagogic and protective function. Hence, the term “DYSFUNCTIONAL FAMILY” is derived from these terms in this paper,** which term, due to causes of various nature, the indicated basic functions are not in conditions to be realized in a manner and in accordance with its essence – primary group, primary cell in the society. Taking as the point of departure the determination that

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the functions that belong to the family are complementary and complex, they imply harmonized and simultaneous realization, and contrary to this, they are expressed dysfunctionally with consequences for the proper development of the minor – the child, which are expressed through his/her social behavior which is determined as deviant, delinquent, criminal etc.

**Functional family is the family that shows satisfactory level of fulfillment of the basic functions**

**In Article 2 of the Law on Family, the family is defined** as a community of parents and children and other relatives, if they live in a common household. In the Law on Family, it is stipulated that the relations in the family are based on equality, mutual respect, mutual help, support and protection of the interests of minors. This implies that in our legal system, it is stipulated that children should not be subservient to their parents and should not be only passive and obedient executors of the orders of their parents, rather they should be treated equally and with respect. (Law on Family, Articles 2,3,4).

This is responsive to the development needs of their members. It gives support and provides cooperation. The functional family has emotional balance, without the emergence of symptomatic behavior in situations of crisis in life, clear family rules, unimpaired generation limits. The members of the family have their individuality, power to determine the closeness and to establish distance, to communicate spontaneously and freely, to accept difference and sensitivity to the other integral parts of the family atmosphere with tenderness, wit and care, and conflicts are an issue of open discussion, while problems are recognized and resolve (Ajduković M, 2008). The research in this field needs to show that the functional families in this regard are rare. However, one thing is certain, all authors who directed their attention towards the functionality of the family, agree on one thing, the firm parental coalition, with mutual warm relation and mutual cooperation, are the most important factors for functionality in the family.

**Dysfunctional family is the family that does not demonstrate satisfactory level of fulfillment of the basic functions.**

The term child at risk implies a minor younger than 14 years of age, addicted to use of drugs, psychotropic substances or alcohol, a child with disabilities in the development, a child - victim of violence, and educationally and socially neglected child who is in a

situation with impaired or disabled realization of the pedagogical-educational function of the family or the child is not included in the system of education or has resorted to begging, wandering or prostitution, who may come into conflict with the law due to such conditions (Article 12, Law on Juvenile Justice).

The maladjustment to the social environment implies limitations in the psychological development of the individual, because specifically the social environment represents the base of this development, whereby **the realization of the social function is disabled.**

Minors with educational-social problems are considered children from socially and materially disadvantaged families (whose parents have no material and social conditions for care and education of the children, with no constant source of income, with minimal income per household member, unemployed persons, with unresolved housing issues, single parents etc.), **the functioning of the economic function is disabled**, minors with disrupted family relationships (families in which there are conflicting situations, asocial, pathological and criminal behavior of family members, irresponsibility, carelessness and neglecting of the children by the parents, the divorced parents etc.), **the realization of the protective function of care is disabled.**

Educationally neglected children are considered minors with asocial behavior that violates the accepted general norms of behavior: wandering, idleness, running away from school, indecent behavior, prostitution, alcohol use, narcotics and other forms of negative behavior. **(They do not have a built system of ethical and moral values).**

In addition to the psychological diseases and drug abuse among parents, sometimes the parents themselves decide to leave their children and abandon them, however sometimes even when they do not try to leave them, the state due to the carelessness and the neglecting of children, takes away their parental rights, **the realization of the biological function is disabled.**

In our country, the social protection and care are an important function of the country, because it is declared as a social country. Social protection is the most human dimension of the society because it has a primary function to provide assistance, protection of those in need, who can not resolve problems in life by themselves and are in need of assistance by the society, and the duty of the society is to help them and to resolve their problems. Social changes, economic changes have

also led to major changes in the relation to the family as the basic cell, the pillar of the whole society that decreasingly fulfills its basic functions, and thus contributed to new social solutions suitable for the contemporary society. In Macedonia, the number of dysfunctional families has increased. As a result, the legal framework for social protection is in need of finding new solutions to deal successfully with the modern family in the contemporary society. The legal framework in Macedonia, particularly the one that refers to children, is provided with the Constitution of RM, through the Conventions of the Right of the Child, the Law on Family, the Law on Social Protection, the Law on Protection of Children, the Law on Juvenile Justice, the Criminal Law and the Law on Criminal procedure, that constantly change according to the modern time. (The Constitution of RM, the Conventions of the Right of the Child, Law on Criminal Procedure of the Republic of Macedonia, Publishing date 18.11.2010, Official Gazette of RM, no. 150/2010, Law on Family of the Republic of Macedonia, Publishing date 22.12.1992, Official Gazette of RM, no. 80/1992, Law on Juvenile Justice of the Republic of Macedonia, Publishing date 12.07.2007, Official Gazette of RM, no. 87/2007, Law on Protection of Children of the Republic of Macedonia (Consolidated Text), Official Gazette of RM, no. 170 from 29.12.2010, Law on Social Protection of the Republic of Macedonia, Published on 03.10.1997, Official Gazette of R. Macedonia no.50/1997).

According to Article 51 of the Constitution of RM, the laws in Republic of Macedonia have to be in accordance with the constitution, and all other regulations in accordance with the Constitution and the law.

Everyone is obliged to comply with the Constitution and the laws.

## 2. MATERIALS AND METHODS

Combined quantitative – qualitative approach is used in this research.

**Method:** Case Study. The case study includes in-depth research of few people, an enterprise, an organization, a small settlement (village, city quarter etc.) over time. What is typical of the case study is that the researcher examines the indicated phenomena intensively over time. The intensive observation may be within a relatively short period (several days) or relatively long period, a year and longer.

**Techniques:** inquiry, observation,

interview, the analysis of documents, LOBI (list of basic biographical information).

### **Scientific objective:**

Is there connection between the family environment and the delinquent behavior of children from dysfunctional families?

### **Practical objective of the research:**

The results obtained from this research enable to assess the relation between the family environment and the delinquent behavior of children from dysfunctional families.

### **Sample of the research**

This research includes 20 children from dysfunctional families from the city of Skopje. The representation of female and male children is equal, mostly between 8 to 13 years of age. Of all included children in this research, 4 children are Macedonians, 4 children are Albanians, and the remaining 12 children belong to the Roma nationality.

### **Data processing and analysis**

The results obtained from the questionnaire have been quantitatively processed, and the results obtained by means of the observation, the interview, the analysis of documents and the LOBI technique have been qualitatively processed.

On the basis of the analysis, it is determined whether there is a connection between the family status and the occurrence of delinquent behavior of children from dysfunctional families.

This research approaches towards the study of the delinquent behavior of children from dysfunctional families. It studies to what level the educational level of the parents, the material condition, the health condition, the leisure time, the average monthly income of the family, the available permanent goods, the educational resources, the social communication within the family, affect the delinquent behavior of children from dysfunctional families.

## 3. RESULTS

The results show that all mothers are illiterate, that is, they have no education, their father finished primary education (D. G. 38 years old. Roma nationality) and 12 fathers finished primary school to grade IV.

The occupation of parents is closely related to the social and the economic status of the family, that is, of its members. Certain occupations provide higher status, some

provide medium status, while others provide low social status. This research showed that the occupations of the parents of children without parents and parental care provide low social status. The parents of children without parents and parental care deal with collection of plastic bottles, old paper, resale of old items, wiping the windscreens of cars, begging. It was determined that the mother of only one child earns by cleaning in other people's homes.

*(The money from the social aid is not sufficient for bread only, and if I do not clean in other people's homes, there will be nothing for us to eat. I. Lj., 39 years old, Roma nationality), and all the others help their husbands in the collection of plastic bottles, old paper, wiping of windscreens of cars. Usually the father wipes windscreens of cars, and on the other side of the crossroad, the mother and the children beg.*

In order to meet the daily material and other needs, it is necessary for the families to realize specific income. The income level determines the level of living standard, even the position in the social structure.

Taking into consideration all families when it comes to employment, the results showed that only one parent (father) is employed (I am responsible for 5 children, although 4 of them are married, S. D., 57 years old, Roma nationality). The other families do not generate income based on employment. The basic income that families have are the assets from the social financial aid (18 families). They work as seasonal workers and collect and resell plastic bottles and old paper.

The health condition of children is determined on the basis of the insight into health care cards (those who have them) and the conversation with the parents / the guardians of children. The lack of a health care card is due to the non-existence of the children in the registry of births, and therefore the inability to get basic documents (birth certificate and health care card). Good health condition is found in all children, whereby in one child, a small problem had been identified in regard to walking with his left leg (intrinsic disease), emotional, as in most cases. These children show some specific emotional reactions, and these are not always appropriate to the emotional experiences. Mostly the children are frightened, ill-tempered, and they manifest aggression. In the conversation with the parents it has been determined that children often have respiratory diseases, and among the children various types of skin diseases are present.

The results showed that the only

institution which was visited by 8 of the children is the Day Center for street children, the others are included in a regular educational process, and one child is 4 years old.

In parallel with the recognition of the educational status of children without parents and parental care, their relationship to the school is also considered. In fact, the relationship to the school is an important indicator of the actual behavior of children without parental care.

The relationship of children without parents and parental care to the school, is globally negative. This contributes that they do not go to school or if they go to school, they have little success. Their negative attitude in regard to the school arises from their parents' attitude in regard to school. The parents consider that the education is not necessary, or that they do not have sufficient financial resources to send their children to school. This reduces the possibility to impact on the school and the school environment in the socialization of children without parents and parental care.

The results showed that only 11 children would like to go to school regularly.

Most commonly mentioned obstacles for regular presence in school, in the interview with the children and the parents include the following: poverty, lack of funds to provide the necessary material and equipment for the children to go to school, the consideration of the non-existence of benefit that the parents have in regard to sending their children to school, while children often claimed that they are not interested, they have difficulty to learn and to get up early in the morning, or that they must help their parents in the collection of old paper and plastic bottles. The results showed that even those children who want to go to school on a regular basis, are prevented to go by their parents, because their parents do not see any benefit from the school or they believe that children must help in providing livelihood by begging, collection of old paper and plastic bottles.

Although according to our regulations, it is mandatory for all children to be included in the primary education, according to the data from the State Education Inspectorate of 2001, this obligation is not being fully realized, especially in classes from fifth to eighth grade. When it comes to the structure of the family of origin, the results showed that the children come from marital relationships, but more from extramarital relationships of their mother and due to illness, mental disorders, serving prison sentence, rough neglecting and

abuse of their children, the country through the Ministry of Labor and Social Policy under the competence of the Center for Social Work undertakes appropriate measures of protection of the same and protects them with forms of social protection.

In regard to the delinquent behavior, the survey showed that of 20 children in total, 17 children show delinquent behavior, that is, only 3 children do not show delinquent behavior.

#### 4. CONCLUSION

The conclusion from my research is that children from dysfunctional families become delinquents. In favor of this fact is the result obtained from a survey where it is observable that from 20 processed cases of dysfunctional families, 17 gave a result of delinquent behavior. This means that our country does not cope with this problem so easily. By early detection of this phenomenon and the use of appropriate forms of protection, the possibility of emergence of delinquent behavior in these children, is reduced.

In terms of the consequences on children from dysfunctional families, experts warn that most commonly these are accompanied by a deficit of the psychological, intellectual, and social development, psychological disorders to chronic depression which they carry as consequences during their whole life.

Experts with a long practice in this field of work indicate that children from dysfunctional families can get involved in other anti-social behaviors such as drug addiction, prostitution, stealing.

On the other hand, the difficult economic situation in the country which brings insecurity and uncertainty, has a negative impact on the social-health, psychological and general behavior of the individual in the environment and beyond. The consequence of the development and the dispersion of this phenomenon is the returning of modern living decades back, in the opposite direction of the messages for humane treatment and welfare of everyone in the civil society. These conditions should be as soon as possible and objectively actualize the issue of prevention of occurrence of children from dysfunctional families and their help. Work with these children should be organized on the basis of appropriate programs, providing care for them in foster families and

appropriate institutions and providing help and reintegration in the family, at school and in the immediate environment.

In our country there are several laws that deal with the issue of family and children, however they do not represent a harmonized system. Rather every law partially solves some problems and determines conditions and activities of law enforcement authorities and social authorities. We do not have a generally accepted definition of what a “dysfunctional family”, who is the children who come from these families?

#### Recommendations:

- Harmonization of the legislation on family and child protection.
- Building a methodology of recording and observation of dysfunctional families and children who come from these families.
- The authorities that observe this issue should prepare harmonized instruments for observation of this issue.

#### Conflict of interests

Authors declare no conflict of interest.

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# THE INFLUENCE OF PARENTS ON PREPARING A CHILD FOR SCHOOL

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**Abstract.** Starting school is an important developmental step / task not only for the child but also for their parents and family in which to grow up. The accomplishment of this task expands the boundaries of family / parent and the child's functioning in social, emotional and cognitive sense. The aim of this paper is to highlight the need to educate the parents of the child going to school, which would contribute to parents with awareness and sensitivity to the nature of long-term process of entering the child's entry into school, to a child's socialization process related to school and proceeded in a favorable direction. The author emphasizes the importance of having a separate program prepares parents for the child starting school, as part of the annual program of preschools / schools that educators / teachers should realize and thus improve their educational work with one hand, while on the other hand its value will be reported in a balanced relation between child-school-family, but also to avert the potential emotional difficulties, or, the child's dysfunctional behavior. Participation of professional services and school teachers / teachers in the implementation of such programs can enhance compliance of educational values that are placed in front of the child in the family and in the school environment.

**Keywords:** *Parent, Child, Program prepares parents for the child starting school.*

## 1. INTRODUCTION

Starting in first grade is a very important event in childhood and represents a big change for both parents and children. It involves the willingness of the child to accept new commitments, but also a parent's willingness to put in it to support a proper way. Each transition / transition in the life cycle of the family, including the child's enrollment in school, the family is faced with the emergence of numerous changes of various types (practical,

emotional and social aspects of changes), or "call" family members to leave the old and build the new scheme of behavior, relationships and functioning to adapt to the new situation. Some of these changes are immediately visible (use a different time, a different calendar of holidays and travel, different daily routines, expanding framework of social functioning) (Polovina, 2009). Although changes are inevitable, the question of its nature and scope will depend heavily on the established forms and styles of family functioning, as well as the attitude towards change.

Important considerations foundations that are built-in the preschool age have a sense of responsibility, a sense of security and independence in children. These properties are developed primarily through contact between parents and children in the family. Parents must hand over the child to ask the different requirements and obligations in accordance with their age, and it will also be the main helpers in the child's education. However, many parents in order to prepare children for school, giving priority to special preparation for the school (which usually boils down to learning some of the content of the curriculum for first grade, making sure it unprofessional and not systematic. In order to prepare the child for schoolwork, most parents intensively encourage children to behavior rules and relations to others, suggest their proper expression and positive communication, direct them to the letter recognition, writing and arithmetic. In cases that do rapid, irregular and untimely as pointed out by Amela Mesic: "can cause the opposite effect, and the child could have some difficulties in the early school days" (Mešić:2013:114). The preparation of the child for school violence should primarily be preparing for its gradual independence. in the family, the child acquires basic hygiene, cultural and working patterns of which depends mostly on how to adapt to school mode. in addition to the previous preparation, attention

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should be paid to monitoring and has been in compliance with the school schedule, especially in the initial period of schooling. On the other hand, inadequate preparation can make the school experience is very stressful for the child and lead to various difficulties in adapting, monitoring instruction, motivation and attitude toward learning, and consequently to create a bad image of yourself. Therefore, as stated Radenko Krulj and Zvezdan Arsic "parental involvement in various forms of educational activities and training them for specific help children through joint activities and creative workshops can make a significant contribution in this direction" (Krulj and Arsic 2012: 27).

## **2. SIGNIFICANT RESEARCH TO PREPARE PARENTS FOR THE CHILD STARTING SCHOOL**

The influence of parents on preparing a child for school is a concept that has not been sufficiently and adequately investigated and it is in the focus of interest to both practitioners and research scholars (Gašić at all, 2008; Klemenović, 2009; Polovina, 2009; Colic and Nišević, 2011). In dealing with this problem are in their work dilemmas that practice by teachers and professional teams encountered when developing cooperation with parents within preparing children for school. Although the good cooperation with the family as one of the fundamental principles in educational work with children in the preschool age, recent research conducted on the occasion of the introduction and realization Preparatory Preschool Program (Gašić at all, 2008), which was attended by 192 teachers and 725 parents indicate that this segment should be paid more attention. The results of this research indicate that most parents prepare "understands very closely and is tantamount to literacy. As a leading joint activities in the family, most of people singled out: picture books with children and reading books (71.58%); helping children learn to write (71.17%); and reading (60%); providing assistance with learning a foreign language (22%), learning colors and basic mathematical concepts (4.4%). According to the results of the research, the general picture of the preparations in the family circle of children for the upcoming school activities may be regarded as unprofessional, highly specialized and wholly inconsistent with the

developmental needs of children.

The author of the article "Cooperation preschools with families in preparing children for school" (Klemenović, 2009: 398-411), particular attention is paid to the promotion of cooperation with parents and provides guidelines for improving collaborative relations and cooperation strategy designing kindergarten with his family in this preparation of children for the school. Among other things, in this paper, and it demonstrates that the biggest problem in preparing children for school are due to different parents expectations mainly concern the literacy of children.

Based on the findings of researchers we can conclude that most parents focused on literacy for children instead of focusing on general psycho-physical preparation, motivating children to learn and improving communication skills, introduction to the new circumstances of school life, play together and socialize that enhance their cognitive abilities, but also contribute to strengthening mutual trust and feelings of security. In this respect, Kamenov says: "Parents are in most cases interested in the success of their children in school, but their contribution in this regard is not adequate, and even the wrong, despite good intentions. Hence, one of the activities of teachers in preparing children for school, should be directed to the family "(Kamenov, 1997: 192).

Stressed the great need for a separate program prepares parents for the child starting school, as part of the annual work program of preschools / schools that educators should realize, and thus improve their educational work. Specific objectives of the program related to the child starting school would be: child support adapting to the school environment and building a positive image of yourself as a learner; improvement of parents in the process of designing and building a parenting role; synchronize the operation of adults (parents and teachers / teachers) and establish a constructive partnership in supporting their child's takeover of the city in the way of education and learning. Addressing the problem of preparing parents for the child starting school prof. dr. Nada Polovina highlights the need for (psycho) educational programs aimed at parents whose value is in the development of various segments of the parental role, as well as the necessary skills and knowledge that have been confirmed many times. However, as pointed out by Polovina: "work to prepare parents for the child starting school as a subject, according to

available data, is not represented in such programs” (Polovina, 2009: 93). We can say that in practice some schools and preschool institutions in order to raise awareness of teaching parents to prepare children for first grade, but with a note that this job does not work sufficiently planned and systematic. Currently, the development of pedagogical culture of parents is done ad hoc, from today to tomorrow. The annual program are not planned programs with them on the “long run”, whereby special attention should give educators and teachers, particularly professional services with the aim of improving cooperation with parents would as a key link in the quality of preparing children for school. These programs, which could help to parents with awareness and sensitivity to the nature of long-term processes that enter the child’s entry into school, a decision that will have to make related to the child and their own functioning, and make necessary changes in the organization of everyday functioning to a child’s socialization process related to school and place it in a positive direction. In this regard it is important to recall the results of research (Redding, 2005, after allegations Polovina, 2009), indicating that some parental behaviors encourage a child’s positive school experience and child development associated with the school. Tyler and colleagues, dealing with the influence of parents on children’s readiness for school developed the so-called concept of “working model of parents tied to the school,” which includes a combination of memories of parents on their own experience of school (creating generalized expectations) and the attitudes, values and beliefs related to the child’s learning and development in the school environment. Actually it is a concept, trying to capture and show the importance of the personal aspects of the functioning of parents during the child’s education, as well as to point out the ways in which these different aspects affect a child’s academic and overall development. Tyler and associates, in addition to the aforementioned concept of shaping the behavior of parents towards the child in the segment relating to the child’s development to schools and talk about the relationship between the parents according to the Institution, the school and to their knowledge (Tyler et al., 2004, following allegations Polovina, 2009).

By integrating the results of numerous studies Redding (Redding, 2005), has developed a different concept of parental behavior toward the child and make necessary changes in the organization of everyday functioning to

a child’s socialization process related to school and curling in a favorable direction. It is the concept of family curriculum, or how Redding points out, “a kind of extension of the plan, structural and organizational patterns and the value aspect of family functioning, the implementation of which contributes to the child’s success in school.” (Redding, 2005; according Polovina, 2009: 98). The essence of this multiplier concept is parental commitment and involvement in activities that promote the child’s learning, and takes place in the context of everyday family life in the home environment. In particular, it is about creating habits related to learning and creating an environment that highlights and evaluates the acquisition of knowledge. At this age, it is desirable to combine educational strategies that, on the one hand, based on the teaching of a child by an adult, but he on the other hand, it allow for spontaneous choice of activities in a carefully prepared learning environment that includes a supportive adult (Sharp, 2002; according Polovina, 2009).

Taking into account that, as a form of joint activities between parents and children that contribute to the preparation for school can be extracted so-called dialogic reading. The procedure is not focused only on reading the text in a picture book by an adult already includes discussion, questions and answers about what is read, it is seen from the figure, associated with the experience of the child from the real life. I can connect and pictures of objects with their names, to compare differences in the size of the words and the size of objects, recognize similar words, choose “kind words” and come up with a number of other “games” which, at first driven by adults leaving time growing child initiative, but and demonstrating a willingness to support the interest of the child for a new approach or theme. (Bowman et al, 2000: 196-200).

Based on the above conclusion about the need for a special program prepares parents for the child starting school, the question arises what is it, that, school / nursery can do to support and encourage parents to be more constructive in what way deal with the changes that carries the child starting school? How to organize cooperation between pre-school and parents in order to meet the physical, socio-emotional and functional preparedness for school targeting each child involved in the Preparatory pre-school program? These issues are of particular importance given the well known and accepted rule “that good (well prepared) start the basis for the successful development

of the whole process that follows.” (Polovina, 2009: 93).

### 3. CONCLUSION

Bearing in mind the various arguments that derive from the theory and practice of pre-school education, we give some recommendations for the development of cooperation with parents whose children attend the first class. The current practice in preschools that boils down to organizing activities for parents of children who attend a preparatory preschool program (PTA meetings devoted to preparing for school / meetings at the group level for exchange of information about the activities carried out with the kids, information for parents on notice panel, individual interviews ...), it is possible to complement and better set up if teachers and educators act as a team. Good cooperation with parents, primarily implies that educators and experts, through various forms of individual and group contacts, contribute to the improvement of pedagogical culture of parents and provide facilities for high-quality physical, socioemotional and functional readiness of children for school. In order to improve parental skills to prepare children for starting school, expert contributor should develop a special program for preparing parents for the child starting school (preschool activities designed to make working at home with the children contributed to their readiness for school). Lack of preparation programs for parents for the child starting school, generally speaking, may reflect a discontinuity institutional links with parents in the transition from pre-school institution to institution. In this sense, as pointed out by one critically important period in the functioning of the family and the child, very important for the functioning in the school environment, it remains to “float” in the institutional vacuum, and the potential that the situation of the child’s enrollment in school has to initiate cooperation and work with parents remains unused.

The overall objective of each training parents, including those for child starting school, is to facilitate and promote the overall development of the child, or to provide experiences that promote child development. Specific objectives of the program related to the child starting school would be: child support adapting to the school environment and building a positive image of yourself as a learner; empowerment of parents in the process (educational course directed) designing

and building a parenting role; synchronize the operation of adults (parents and teachers / teachers) and establish a constructive partnership in supporting their child’s takeover of the city in the way of education and learning. Although this preventive program aimed at parents, his value will be expressed in a balanced relation between child-school-family, but also to avert the potential emotional difficulties or, perhaps, the child’s dysfunctional behavior.

#### Conflict of interests

Authors declare no conflict of interest.

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# FROM GLOBALIZATION TO GLOBALITY - MERGING NON - WESTERN (POST) COLONIAL AND WESTERN SOCIETIES INTO A GLOBAL MODERNITY

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**Abstract.** Modernity stands as a widely used term for social change as it involves modification in many forms in the society and the way people develop with different ideologies and movements. Standing on the other side of the traditional and historical, modernity brings new forms of development, communication and connectedness. In this paper, it would be discussed whether the globalization processes are leading to merge by the societies and raising a global modernity. Hence the influence of the West and the pilgrimages drawn from the other societies would be examined. Change is just an unavoidable part of the society seen as a reform, reaction or revolution. However, the historical processes of integration, innovation and development bring different questions and theories. In this paper, it would be referred on the integrative inclinations for merging societies, the understanding of modernity and globalization processes that emerge from the historical development and social change.

**Keywords:** *Modernity, Globalization, Post colonialism, Social change, Westernization.*

## 1. INTRODUCTION

I would like to begin this essay explaining and defining the key concepts globalization, modernity, and globality while having the basic idea of preserving the scientific principle, going from general to more specific and concrete. Even though the term globalization is one of the most utilized and discussed topics in this modern world, I still find it challenging to explain it, because of its complex nature. We can see evidence of globalization at every turn, at home, in the workplace, in large stores, newspapers and business journals, the monthly government statistics, or in the academic literature. Globalization according to Albrow

refers to “all these processes by which people of the world are integrated into a single world society, global society” (Albrow, 1990:9). We are all aware that globalization processes are changing the picture of the contemporary relations amongst states, regions and the world overall. With the expansion and opening of the new horizons of freedom, democracy and world evolution, the processes of domination, hierarchy and authority have without any doubt increased as well. There is no unique definition of what globalization is but we can say for sure that it represents multifaceted interaction of forces that can result with producing sometimes contradictory, fluctuating effects of integration and disintegration, cooperation and conflict, order and disorder, peace and conflicts as we may notice (Wiebelhaus-Brahm:1). There are also perspectives saying that globalization is an antihumanism, and it is against the fundamental postulates of human life and society. The approaches will be always divided, but then, how and which position and attitude should we take towards globalization? In continuation, there is the subsequent form of globalization, globality. This term could be understood as something that follows after the globalization processes. Some may also argue that is a historic phenomenon (Weaver, 2003:1). In addition, modernity is the major concept or idea that reflects in the globalization in the societies. In this essay I will start out by explaining the meaning and concept of globalization, globality and modernity, afterwards I will try to explain some historical processes through the prism of modernity that are leading towards globalization, globality and merging of many countries, cultures, the influence of the West the positive and negative sides of the interconnectedness.

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## 2. WHAT IS MODERNITY?

In several important observations to globalization was understood as the outcome of modernity. Nowadays, many perspectives and conceptualizations are interrelated, becoming more and more synchronized and standardized, that is why globalization can be understood as the flexible combination of several disciplinary approaches (Giddens, 1990:46). Globalization, if we take it in a comprehensive way of perception, forms a world-wide historical field where global ideas and experiences are shared (Giddens, 1990:52). It was written in one article on a very simplified way that modernization, as well as globalization, is a process that happens straightaway, in this moment indeed. It is assumed that “modernity can be understood as an immanent condition that structures social action in manners that is significantly different from previous epochs” (Macamo, 2005:3). It is noted by Witrock that: ... “Modernity may be understood as culturally constituted and institutionally entrenched. However, these references points not only become arguments in ideational confrontations; but also provide shaping principles behind the formation of new institutions” (Witrock, 2000:38). The Reformation, the Enlightenment, and the French Revolution are the main events in history as some may say, that created the standpoints of modernity. As can be viewed, a spatial-temporal structure is following. In addition, other cultural processes are usually added to this sequence as well, from the Italian Renaissance and the German Reformation to the Enlightenment (Tuma et al, 2000:469).

In “Consequences of Modernity”, the author Anthony Giddens, argues that: “Modernity refers to ways of social life or organization that emerged in Europe from about the seventeenth century onwards and subsequently became more or less worldwide in its influence. This links modernity with a time period and an initial geographical location, but for the moment leaves its major characteristics safely stowed away in a black box” (Giddens, 1990:1).

### 2.1. How can modernity be understood?

It is also perceived that modernity has two sides. Undoubtedly, modernity has created benefits for everyone, but on the other

side it has its negative features too (Giddens, 1990:2). We can take the African continent as an example, and give an explanation how countries were colonized and linked. The basic argument of modernization in this context, as some authors would say, is that Africa is a modern construct. “This is based on the principle that the awareness of an African cultural identity that can lay claims to a single political and economic destiny was the result of a discursive and practical confrontation with existential conditions brought to the continent by its forced integration into European historicity” (Cooper, 2005:92-103). In other words, it was in the process of coming to terms with slavery and colonialism that a specific kind of African identity was created. Africans produce their own social reality in dialogue with modernity as they move from colonialism into a world defined by themselves and by what they make in their everyday life (Cooper, 2005:92-103). We can say that modernity and globalization start with the movement of people and exchange of goods, as we mentioned previously.

### 2.2. One or multiple modernities? How it is perceived?

“Modernities are everywhere, at precisely the time modernity as the epochal discourse of the West appears to be on its last legs. This is one of the more paradoxical features of the globe.” The sense that modernity is at a turning point, comes from its inclusive, trans-cultural, and mixed character. Globalization can be described by the diversity of its modernities. The post-colonial theory provides a way to understand why this is so (Ashcroft, 2009:1).

Looking back in historic processes and happenings, we can realize that the world has always been somehow interconnected, no matter if the purpose was war, colonization, exploitation or conquering new territories. There are connections on different levels, in culture, economy, tradition and so on. Africa can be seen as a key player in the studies of capitalism, because of the options that Africa offered. For example, the slave trade was understood in different ways, it meant external relations and interconnections, exchange of resources and it had different consequences. However, the interconnectedness of different parts all around the world was crucial to the histories of those places, starting from slave



trade in the eighteenth century and ending with emancipation in the nineteenth.

### 3. MERGING SOCIETIES

If we start elaborating on how globalization connected (post) colonial countries with the ones that are more developed or, the “Western” part of the world, we can surely start by explaining the states, briefly mentioning their sovereignty and the ideologies that reigned. Wallerstein explains that every state has its sovereignty or state power, supremacy (Wallertsain, 2004:53-59). It is also a fact that all states are sovereign but only the stronger ones can get involved in the inside affairs and relations of weaker states. It is a fact that these stronger states have always been involved in the policies in the less powerful ones, putting a pressure and to a certain degree forcing them to take steps that meet the requirements of the strong states policy. Here I can mention some of their requirements like cultural, linguistic or educational policies or follow their way on the international ground. Strong and weak states were always interconnected, they have mutual benefit, the strong ones buy of the individual leaders in the weak ones, and the others grasp the protection they offer. Wallerstein mentions that the weakest states are the ones that are colonized and the decisions making bodies in any field are personnel from the colonizing country. The colonized state is the weakest kind of state in the international field, and it has the lowest level of autonomy. That is the reason why it can be easily exploited and manipulated from others (Wallertsain, 2004:53-59). Since I took Africa as an example, it can be noted that those who colonized, claimed that they are “opening” the African continent (Cooper, 2005:92-103). It could be sometimes perceived as European-dominated globality. It has been argued that colonialism in Africa was the formula that actually helped the African continent to absorb the modernity as a social reality (Macamo, 2005:5). The slavery in African countries or anywhere was not something new, but the interrelations between these countries. This gave a boost and uncompromising expansion of the system in the nineteenth century. When the French Revolution and Declaration of the Rights of Men was drafted, the exploited people and slaves became aware of their rights and possibilities and fought for liberty and democracy (Cooper, 2005:101).

“Post-colonialism can be provisionally

defined as the perspective or worldview of those who believe that it is possible to understand today’s world only by foregrounding the history of colonialism—defined in a very preliminary way as the domination of certain societies and peoples by others—over the past five centuries”(Krishna, 2009:3). Also, modernity has its role as a concept. Its realization is somehow blocked by the colonialism and socialism. Some may say that globalization and post colonialism became interesting and present in our surroundings these past two decades, but I oppose by saying that these processes or terms exist much longer. Undoubtedly, the decisive moment was the French Revolution. Globalization also refers to the integration of the societies into capitalist modernity and that includes economic, social, cultural and political patterns (Dirlik, 2003:1).

On the question whether the Western and non-Western countries merge, I would definitely state my attitude as positive. Obviously it is the result of the globalization processes. The trans-boundary movement of goods, people, knowledge, languages and cultures proves the state’s society possibilities for collaboration, and external connection. If we take a look at the world today, we can see many inequalities, connected but different. Many people would say that the globalization is some kind of global governance that goes beyond the nation state, that the authority is relocated to the international field, here we could include international organizations and other actors. This also confirms the statement that the world is interconnected, but not completely. We can still witness parts of the world that tasted the new technology, rise in economy or possibility to travel cheap and fast. We can say that current trends and economic integration are processed, but only in a limited manner. We cannot be definite if the pathways to development are still available in the developing countries, taken into consideration the constraints of the global economy (Wiebelhaus-Brahm:5).

The western and non-western world is viewed as an identification and process of classification for how modernity can be described. When we mention the Western world we refer to the countries who had the biggest economic, political, and social developments in the 19<sup>th</sup> century as well as self-identification and often they are the synonym for change. We need to add that African slavery as we gave it as an example above in this text, and the colonial empires, was the main culprits for the creation of Modern Western Europe and

America. Moreover, the word modernization is sometimes seen as economic development or acceptance of Western principles which means increasing development processes.

Consequently, modernity is perceived as something that is permanently changing the traditional settings and moving on to conquer the Non Western world. Contact with the western developed countries is seen as inability and confusion in the local culture and identity, while the imported elements are new, different but welcomed and accepted. This term represents the relations between the countries their societies, cultures and overall the civilizations, where always some group are more central than others. Dealing with details, but we can say for sure that the historical events that begun around 1500 and 1800 and took place in Europe definitely made changes and alterations. According to this, we can add that globalization can be seen as a long process that raises the interconnection between states and civilizations.

#### **4. MODERNITY OR GLOBALIZATION?**

Additionally, Western modernity is understood as one of the many levels of globalization and its processes flourishing all around the world (Roudometof, 1994:18-21). Nonetheless we cannot deny the positive facts from the globalization, as globalization is not deleting the local culture, and the local culture is not surrendering itself to the powers coming from outside, but it engages with all the benefits that could be adapted. In this modern twenty first century, we cannot say for certain what is global and what is local, and for sure those boundaries are blurred. Yet, what is very important, how the globalization process affects and portrait in different societies and states, it depends to a large extent of the local culture (Turner and Khondker, 2009:33). "If globalization was to become an ever inescapable phenomenon, it was through colonialism, nationalism and socialism which were at once products of globalization and efforts to shape it in some ways, or even to restrain it, as in the case of nationalism and socialism" (Dirlik, 2003:21). Globalization is in many respects about a surfeit of history, both as its constituent and its product. Some scholars would say that through all the actions that happened in history, people were those who were actively participating in the creation of persistent

process of interconnectedness.

People developed themselves as they were crossing boundaries and spaces countering something that is different, spatially distinct (Cooper, 2005:108). Globalization provides as some may say, opportunities for prosperity, global communication, peace and democracy, while others are radically opposing by saying that there is a great threat of conflicts and uncontrolled power. With the increased mobility and flows of capital from the western and non -western countries unity on the international field while forming some model of "global governance". The nature of capitalism has changed as well when entering the post- industrial economy. We must mention that the economic processes became so dispersed and hard to keep control on them (Wiebelhaus-Brahm:1-5). What is more in this new era, it is not only the interactions that happen every day but the level where global culture industries are circulating, namely through transnational actors and agreements. We can continue discussing the globalization, the way it developed, all its historical processes and different aspects but they will always be indefinite. There will never be sufficient definitions and explanations. Yet there will always be scholars who oppose.

#### **5. CONCLUSION**

In summary it can be stated that for many people the globalization means Westernization and is considered as a cultural degradation of their local society. Others think that it produces ethnic inequalities, discrimination and conflict and that the engagement in the international economy means danger by itself. The more optimistic version is that these processes represent a challenge and a positive change and opportunities (Wiebelhaus-Brahm:7). As we mentioned before, on the question whether globalization leads to globality, the answer would be affirmative. Globality means that nothing that happens on this planet can have local meaning only. All the events have global effects on the world as a consequence of the globalization processes. In addition, modernity is seen as the European phenomenon. It is believed that "modernity at large" or different modernities can be hybridized, uneven ...."nevertheless, in the last instance these modernities end up being a reflection of an Euro -centered social order, even if under the assumption that modernity is now everywhere, an ubiquitous

and ineluctable social fact” (Escobar, 2004:5). Modernity means emancipation too, and this emancipation in Europe started around the eighteenth century. It was manifested through the Reformation, the Enlightenment and the French Revolution. Many scholars are asking questions and exploring the processes of globalization, but there are still some questions that remain unanswered. In addition what are the features of modernity, is globalization something that could be called post modernity or not? While some of the scholars who observe the globalization and its historical processes would state their opinion as positive, there are also some who provide opposite statements. Globalization is a very inconsistent process, happens between the states, the Western and the non-western, the more and less developed, but then again also happens within them (Wiebelhaus-Brahm:2). From a historical perspective we could argue that the globalization can find its roots in the first migrations of people, long distance trade connection thus connecting the colonialism and everything that followed (Pieterse, 1993:48). It is also true, and I can agree upon that the relations that happen between regional systems in trading, religious networks, geographical differences and considerations as well as the spread of power present very complex historical pattern (Cooper, 2005:101). Additionally, some would say that modernizing equals with westernizing, that non- Western countries should leave their cultures and accept the Western ones. All of the developing countries or Third World countries would like to merge and modernize, but that does not mean essentially adopting or copying completely the culture and Western values. Moreover, there are leaders from these non -Western countries that have accepted modernization but not westernization. We can give the example that China is modernizing but not westernizing. I will end up this essay by saying that we can always agree upon some decisions and facts if or if not the world is one homogenous place interconnected with its modernities and fragments, but we will always have lack of words to describe this rigid globalized world while being surrounded constant by its images.

#### Conflict of interests

Authors declare no conflict of interest.

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# INTELLECTUAL INDEPENDENCE OF STUDENTS IN THE PROCESS OF GAINING KNOWLEDGE

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**Abstract.** The main task of teaching at the present stage of social development that is characterized by the rapid development of science and technology should be directed towards ensuring that students are in the process of gaining knowledge as more independent. Learning in the modern conditions of life and work more focused on finding new information and acquiring skills that they interpret, judge, critically analyze and find their practical application. Individual learning is a process in which students do their own activities, and the school should primarily be to develop pupils' skills and habits for independent work, or to enable them to actively come to know and own efforts. With a program of independent activities of children in the process of acquiring knowledge in teaching should begin already at a younger age in order to further their education existed during the constant rise of autonomy and independence. Individual learning in the classroom requires thought flexibility, critical thinking, individual work and intellectual independence, creativity and productivity, motivation and interest, as well as a partnership of teachers and students in the realization of educational tasks.

**Keywords:** *Teaching, Student, Teacher, Knowledge, Intellectual independence.*

## 1. DEVELOPMENT OF UNDERSTANDING OF THE NEED AND IMPORTANCE OF INTELLECTUAL INDEPENDENCE OF STUDENTS IN THE PROCESS OF GAINING KNOWLEDGE

Intellectual independence of students is one of the most important prerequisites of their activating reasoning in the process of

gaining knowledge, because the activity of the opinion that everyone just has to perform. Featured educators have long recognized the importance of intellectual independence and demanded that this capability needed attention. In accordance with this, [М. Монтењ \(1952, 54\)](#) requires that "knowledge is gained by their own actions to any internal acquis". [Ј. А. Коменски \(1954, 75\)](#), was the fact that "I am a student penetrates to the root of things and learned their meaning and purpose." [Ж. Ж. Ручо \(1950, 170\)](#), demanded that "knowledge must be the consequence of their own observations and thoughts." The need for intellectual independence of students in the process of gaining knowledge is indicated and [А. Дистервер \(1956, 74\)](#), who pointed out that "no one can think instead of students, just as no one can replace, for example in the digestion of food," but [К. Д. Ушински \(1948, 76\)](#), which is in accordance with the requirements of the new school set before the children insisted that "children, preferably working independently." The ideas, perceptions and attitudes listed pedagogical classics are respected and prominent elder educators in Serbia, before all [Ђ. Натошевић \(1861, 9\)](#), who demanded "that the real teacher only needs to finish, so that children find themselves all alone" and [В. Бакић \(1897, 123\)](#), who pointed out that "the only samoradnjom meože learn something reliable."

Developing understanding of the organization of teaching in the second half of the 20th century, shows a tendency of appreciation of the importance and role of the intellectual independence of students in the learning process to their overall development. In accordance with such commitment is required "to teaching should be oriented towards students' acquisition of knowledge in all subjects and at all school levels" ([Yoakam, Simpson, 1955, p. 103](#)), that "school learning should need to establish, preferably, as a stand-alone

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operation “ (Штекер, 1960: 46), „every right to education contains elements of self“ (various authors, 1969, p. 210),” the teacher to their work should reach to himself and his work gradually make unnecessary and superfluous“ (Вученов, 1971, 42), „it is necessary to continue to create an atmosphere in which the student will be able to say instead, I learn, I learn (Мандић, 1972, 7), „that quality only those classes that the student provides personal intellectual revolving around the subject of learning” (Шимлеша, 1978, 89), „that the value of each teaching prices at what kind of space provides for forms of self“ (Крнета, 1979, 136).

## **2. SOME TYPICAL PROBLEMS OF INTELLECTUAL INDEPENDENCE OF STUDENTS IN THE PROCESS OF GAINING KNOWLEDGE**

If you truly want to be a student of the subject, not only in teaching facility, should make conditions on this process to substantial knowledge of reality comes our own intellectual activity. Highlighting the need of intellectual independence of students in learning in the classroom is also important because, as it is an important condition for their training for self-education. Education in the modern conditions of life and work cannot be completed at a certain level or levels of education no matter how it was and how long it lasted or can be realized only in schools or other educational institutions. Students are trained to self-most successful in the classroom based on a combination of teaching and self-learning, or teaching that is organized so that learning is characterized by external help, gradually turns into learning without help. Therefore, you should work on creating the conditions that the elements of independent learning Introduction Since the beginning of schooling and what grade levels are increasingly narrowing the scope of direct teaching. Taking into account this request M. Баковљев (1983, 65), says that “teaching does not need to be preceded by self-education, but it has developed throughout his life - all while so it does not develop to become superfluous.” In teaching that develops its activities in this direction, it is impossible to set sharp boundaries between teaching and pedagogical-didactic organized self-learning. Under the independence of teaching

are considered Љ. Протић (1920, 120-121), includes thought-independence. The teacher’s encouraging students to just thinking. However, one can often come across and the concepts by which students under intellectual independence process of gaining knowledge include activities in which the student works alone, without the help of teachers. Such an understanding cannot be accepted, because the success in acquiring knowledge in teaching involves the student’s own opinion to systematically nurtured and developed. Therefore, teachers should be required to foster in their students to use their own intellect and create situations in which the maximum independence of thought expressed by students.

Highlighting the need of intellectual independence of students in the process of gaining knowledge, does not mean that they should be left to themselves. On the contrary. Request for intellectual independence of students in the classroom, without prejudice to the leading role of teachers. This process is not aimed at eliminating the teacher’s leadership in learning in the classroom, but is directed towards its radical and change. And modern-oriented teaching leadership role of the teacher is viewed in this context. It is not rejected, but only radically changed. In modern oriented and organized teaching the teacher does not feed, nor restricts its pedagogical function. The only change to which insists refers to the fact that the leadership role of teachers should be put into operation changes the position of students and its role in their personal development. So, learning and therefore the acquisition of knowledge in teaching should be organized as an independent and guided activities, it is important to know that in this process governed complex relationships arising from self-guided and gaining new knowledge.

The attitude of the student as a subject in teaching today is very often interpreted in terms of the absolute independence of students from the teacher what is wrong. It would be very damaging, but also dangerous to be due to the determination of the position of students as subjects in teaching underestimated, subordinate or even off the leadership role of teachers and their pedagogical function. In teaching, we need to create the conditions for recognition of students subjective position, but you should know that he sometimes has to be in a position to object. The existence of a subjective position of students would bring into question the essence of its existence. Independent work of students in the process of gaining knowledge must be guided, as effective

real activity and individual work of students are possible only under the leadership roles of teachers. Of course, this leadership cannot be reduced to coercion, which in the past was a common occurrence. Also, teacher management should not interfere with the student's intellectual independence in the acquisition of knowledge in what is, unfortunately, very often. In connection with this problem [Л. П. Артрисова \(1968, 40\)](#), says that "assist the student in learning and acquiring knowledge is by no means a simple matter" and that "much easier to interfere in this process." Teachers often exhibit excessive activity and thus hinder the development of intellectual independence in students during learning. This means that it does not take sufficient account of the requirements of modern didactics, that the teacher as possible to deviate from the dominant position and its leadership role into the function of the realization requires that allow students intellectual independence. Among the factors that interfere with the independence of students, even when the request wants to meet, the most crucial is, by all accounts, habituation (most teachers at all costs they dominate the teaching and at any moment to be at the forefront ([Баковљев, 1983, 71](#)). They are manifested in various forms such as answering their own questions, the exclusion of students from the determination of processed, grab the words of students, student repetition (correct answers), too correcting students' mistakes, interruption of student presentations and speaking superfluous (*Ibid*, 71- 74). In addition to these factors that hinder the intellectual independence of students, research results ([Арсић, 2014,126](#)), show that this is due to the time that is available to students to think in answering questions (students do not have enough time to think), the ratio of teachers to students' errors (lack of understanding of students' errors that occur during classes, students mockery of wrong answers, punishment incorrect responses by reducing the assessment or by typing negative rates), inadequate preparation of students for the processing of new teaching content (students are not informed about the case of work on the next lesson) and bias when evaluating students.

Intellectual independence of students in gaining knowledge in teaching should be conducted only as much as is needed to develop his strength and stimulate its activity and self-development. This guidance should be "more indirectly than directly" ([Вукасовић, 1976, 139](#)). Teachers in the process of intellectual independence, students should be treated as

junior partners in the same team. Moreover, teachers themselves need to operate a strategist, routers and organizers of the teaching process and to be parties to a collective process knowledge, true friends and comrades of his senior students. Modern teaching the teacher's work did much more challenging, but also heavier, so the role of the teacher become more assertive and more complex than it has ever been. Creating conditions for the intellectual independence of students, the teacher's management gets deeper content and contributes to his work becomes more accountable and effective.

### **3. THE BASIC ASSUMPTIONS OF SUCCESSFUL INTELLECTUAL INDEPENDENCE OF STUDENTS IN THE PROCESS OF GAINING KNOWLEDGE**

In the traditionally organized courses, students are accustomed to intellectual dependence on teachers, because it mostly just listen, observe, remember and reproduce what the teacher tells and shows, and knowledge are adopted as final products of others' intellectual operations, so they no occasional special classes dedicated to learning about and practicing techniques of self-education will not qualify for successful independent acquisition. They are, therefore, not later, as an adult human, failing to educate their own, without help, because they are deprived of adequate skills and habits. In contrast to such a mode of organization of teaching and learning in it, in which classes are taught their own intellectual efforts not only provides high-quality, flexible and practical use of knowledge but also intellectually independent learners and thereby enables them to self-education. This is the main reason why such teaching imperative scientific and technological revolution that is the time in which we live. And this teaching is managed by the teacher, but his main task is to encourage young people to a more complete and versatile intellectual activity. In such circumstances, students are constantly engaged intellectually: discuss issues and solve problems, set and test hypotheses, analyze the facts reveal causal relationships and looking for all the convincing evidence. In the process of intellectual independence of special importance is the fact that what the students are allowed to doubt the correctness and accuracy

of the results and you get used to learn from mistakes, instead of hiding fearing teacher's reprimand and a bad score. Of course, the main initiator of the teacher who encourages, channeled and controlled, then organize a situation conducive to such learning.

The essence of intellectual activity and intellectual development in the process of gaining knowledge, is focused on developing the capacity of thinking that is the basic prerequisite for the intellectual independence of students in it. Whose development courses can systematically influence through education. In addition, the intellectual independence of students in the process of gaining knowledge depends on the content of teaching and students' activities. Course content in any field, its nature and basic characteristics, determine the nature of the system activities of students' in the classroom, which is a tool designed to influence the development of certain skills students', and thus represents the basis of the process of intellectual education in teaching (Антонијевић, 2010, 224). Intellectual independence assumption students are the result of successful teaching, because learning from somebody else turns into learning without help. According to the М. Баковљева (1992, 125) „Only those who are insufficiently familiar with the essence of teaching can claim to be the student's intellectual independence and the teacher's management of student mental activity is incompatible. “The teacher does not force students to listen, observe, remember and reproduce, but initiates, supports, channels and tactical control unobtrusively as independent work of students. Thus, a teacher with his changing role and necessary professional and pedagogical-psychological and didactic-methodological training is an essential prerequisite for the intellectual independence of students in process gaining knowledge.

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Authors declare no conflict of interest.

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## DIALOGIC LEARNING: A SOCIAL COGNITIVE NEUROSCIENCE VIEW

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**Abstract.** This paper represents an exploration of the educational value of dialogue as a teaching strategy in contemporary classrooms in light of recent evidences grounded in knowledge produced by social and cognitive neuroscience research. The relevant literature suggests that dialogue is a unique feature of humans and no other animal is able to dialogue as they do. Humans are biologically wired for dialogue and interaction with one another in socially and culturally shaped contexts. This dynamic interdependence of social and cognitive processes plays a critically important role in construction of knowledge and cognitive development. It is also well established that social processing in the brain is strongly interrelated with the processing of emotion. Children therefore, are social learners who actively construct meaning and knowledge as they interact with their cultural and social environment through dialogue. In conclusion, recent advance in cognitive and social neuroscience is providing a new basis for the communicative conception of learning in which authentic interaction and dialogue are key components. This suggests new avenues of research that need to empirically investigate the role of dialogue on students' mind and brain development.

**Keywords:** *Dialogue, Dialogic Learning, Neuroscience and Education, Pedagogy.*

### 1. INTRODUCTION

Educators have long known that schools are social contexts and social interaction is a major force in children's development. Evidence from social neuroscience is shedding new light on the neural underpinnings of such social functioning and its relation to learning inside and outside the classroom (Blake-more, 2010; Immordino-Yang, 2011). In light

of these understanding, several studies have devoted to exploring the potential contributions of recent advances in social and cognitive neuroscience research for educational theory and practice (Immordino-Yang and Damasio, 2007; Meltzoff et all, 2009; Immordino-Yang, 2009; 2011; Lieberman, 2012). These studies strongly verify the profound importance of social interaction on human learning and emphasize the value of recurring social components of learning in making the curriculum and managing the process of teaching.

Taken together, these studies have shown some success in identifying the neurobiological processes of social learning and its potential implications for the school curriculum and classroom practice. Nevertheless, neuro-cognitive bases of "dialogic learning" (Van der Linden and Renshaw, 2004; Wegerif, 2011) - as a form of social learning- is still largely unknown.

By this in mind, this paper takes into account to explore the state of dialogic learning in light of recent evidences that mainly grounded in knowledge produced by cognitive and social neuroscience research. Such interpretation represents some facts that are necessary for a more comprehensive understanding of the state of dialogue in education, and in shaping further investigation in this area.

### 2. THE NEUROSCIENCE BASES OF DIALOGIC LEARNING

Dialogic learning throughout this paper is referred to teaching through dialogue as well as for dialogue in which dialogue is not simply treated as a means to the end of knowledge construction but more importantly treated as an end in itself (Wegerif, 2011).

A comprehensive understanding of dialogic learning requires integrating knowledge

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from a variety of disciplines in the natural and social sciences. In this endeavor, we need to explore the neural and biological underpinning of dialogue and synthesize with our educational and psychological understanding in this area. To this end, this paper aimed to drive a set of notable insights from the neurobiological underpinning of dialogic learning based on converging evidence in cognitive and social neuroscience. Among a variety of insights which deserve to be highlighted in this review are the following:

### **2.1. Humans are biologically wired for dialogue and communicating with one another**

Recent research in “evolutionary educational psychology” (Geary, 2002) provided us with much evidence that early humans primarily learned through social interaction. In this perspective, humans are social beings and their brains develop in social and cultural contexts. They are innately preprogrammed to learn from and about others through social interaction (Geary, 2008). Our social nature defines what makes us human, what makes us conscious or what gave us our large brains (Adolphs, 2003). The success of social interaction, according to Frith and Frith (2001) depends on the development of brain systems that are geared to processing information in the social domain. On this view, we have a social brain that evolutionary developed to learn through shared experiences. One consequence of these evolutionary pressures appears to have been the development of a large scale network in the brain. In support of this idea, there is a correlation across primate species between the size and complexity of their social communication and the relative volume of neocortex. Among primates, humans possess both the highest encephalization ratio and live in the largest groups (Adolphs, 2003; Lieberman, 2012).

Furthermore, recent findings show that infants and young children are born with a biological propensity for social interactions. They have an intense interest in people and their behavior and possess powerful implicit learning mechanisms that are affected by social interaction (Meltzoff et al. 2009). Drawing on a set of studies, Meltzoff et al. 2009 reported that young infants are predisposed to attend to people and are motivated to copy the actions they see others do. Their studies also

demonstrated that human infants more readily learn and reenact an event when it is produced by a person than by an inanimate device. Furthermore, Cacioppo et al. (2007) reported that, attachment and communication in human children are so important that infants respond to faces and attempt to elicit a response soon after birth.

Taken together, if social communication is a driving force during hominid evolution, then children should have a strong and inherent motivational bias to engage in social activities and the forms of social communication that were important during hominid evolution (Geary, 2002). According to this view, learning with others is usually more effective than learning alone, and reflective dialogue is central to this social process (Goswami, 2008). The interactive interpersonal nature of dialogic learning helps to develop new knowledge and scaffold individual learning (Wegerif, 2007). These new insights therefore would support recruiting more dialogue-based and cooperative learning opportunities in making the curriculum and designing the process of teaching and learning.

### **2.2. The transmission of information between humans mediated by dialogue**

Humans are not the only species who their learning is affected by social interaction, but they are only social beings who are innately preprogrammed and biologically wired to form communication with others and themselves through dialogue. Dialogue therefore, is a unique feature of humans and no other animal is able to dialogue as they do. In such a view, dialogue must be understood as a “part of our historical progress in becoming human beings” (Shor and Freire, 1987, p. 13). In a recent study, Goldin et al. (2011) investigated the universality of a kind of dialogue that Socrates (469-399 BC) conceptualized more than 24 centuries ago. They adopted a remarkable lesson of geometry by which Socrates intended to teach Meno’s slave to discover how to generate a new square with twice the area. Fifty-eight educated adults and adolescents were asked a series of 50 questions identical to those posed by Socrates. Their study showed a remarkably consistent between participants’ answers and those offered by Meno’s slave. More interestingly, the vast majority of participants produced the



same mistakes that Meno's slave made. Their results imply that the Socratic dialogue is built on a strong intuition of human knowledge and reasoning which persists more than 24 centuries after its conception.

While dialogue relies heavily on oral language, it can and should not exclusively be reduced to verbal communication. There are multiple forms of representation in which humans naturally interact with self, others and their surrounding world motivating a flow of meaning (Wegerif, 2007). Bereiter and Scardamalia (2005) made this point very clear when they regard the dialogue as a form of literacy and describe it as "the ability to engage productively in a discourse whose purpose is to generate new knowledge and understanding". This dialogic understanding according to Wegerif (2007) provides us with a way to appreciate how different modalities of representation can work together and how different levels and types of dialogue can be integrated into flows of meaning.

In this regard, dialogic learning can be considered as one of the most influential approaches in teaching and learning which both teachers and students co-construct their knowledge and represent their understandings by actively engaging in a challenging discourse.

### **2.3. Dialogue plays a critically important role in construction of knowledge**

Educators have long known that construction of knowledge and cognitive development is strongly influenced by social and cultural factors. Vygotsky (1978) has deeply shown this importance of social and cultural contexts in learning and cognitive development. Basing on Vygotsky, the dynamic interdependence of social and cognitive processes is essential in construction and reconstruction of knowledge. The prime example of this is his conception of the "zone of proximal development". He defines the zone of proximal development as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978, p. 86).

In addition, recent research in cognitive science indicates that cognitive development,

both in the long and short term, is the continual building of new knowledge by integrating, differentiating, and consolidating facts, concepts, skills, and relationships about the physical and social world according to culturally defined strategies (Fischer and Immordino-Yang 2002).

Neuroscientists now confirm that the learning brain has a highly robust and well developed capacity to change in response to social demands. For instance, Maguire et al. (2000) showed that grey matter volume in posterior hippocampus of taxi drivers was significantly higher relative to those of control subjects' and that the grey matter volume correlated with the amount of time spent as a taxi driver. Posterior hippocampus is a region of the brain known to be essential for memory and navigation. Kandel (1998) also emphasized on the important contribution of social interaction on changes in the structure and function of the human brain. He noted:

Just as combinations of genes contribute to behavior, including social behavior, so can behavior and social factors exert actions on the brain by feeding back upon it to modify the expression of genes and thus the function of nerve cells... These changes not only contribute to the biological basis of individuality but presumably are responsible for initiating and maintaining abnormalities of behavior that are induced by social contingencies. (p. 460).

In her influential paper, "A tale of two cases: Lessons for education from the study of two boys living with half their brains", Immordino-Yang (2007) presents the story of compensation for basic skills in two adolescent boys, Nico and Brooke, both of whom underwent surgery to control severe epileptic seizures. During these surgeries, Brooke lost his entire left hemisphere and Nico lost his entire right hemisphere. Her study highlights the remarkable importance of the organizing role of emotional and social experiences in brain development. In her subsequent article, "The Stories of Nico and Brooke Revisited: Toward a Cross-Disciplinary Dialogue about Teaching and Learning", Immordino-Yang (2008a) has concluded that "both boys' motivations to comprehend and produce affective prosody reflected their desires to engage effectively in the social context. They wanted to talk and be talked to, and they wanted to accomplish this in a culturally and socially appropriate manner" (p. 51). New data also indicate that early mastery of language requires learning in a social context to acquire the language spoken in their culture (Meltzoff et al, 2009.). In this sense,

social factors are the key influences in developing our learning and development. Students thus are social learners who actively construct knowledge and meaning as they interact with their social and cultural contexts.

These findings are suggestive with respect to the forms of social learning such as dialogue that will most aid knowledge construction and cognitive development. These results are consistent with the behavioral research supporting the impact of dialogic learning on students' cognitive abilities. More specifically, the results of a recent study indicated that the dialogic learning condition, compared to the non-dialogic, resulted in a more positive effect on the critical thinking competences of the students, both in terms of generative fluency of reasoning and quality of value orientation (Frijters et al, 2008).

Therefore, as far as the thought and knowledge is created and developed in an inter subjective approach (García, 2012), school curriculum needed to provide learning opportunities for social interaction in which the active construction of knowledge can flourish.

## **2.4. Dialogue is a key element for emotional involvement**

In addition to the interrelations between social and cognitive development, social processing was found to have substantial impact on the emotional brain. Findings from brain research are consistent with the view that early social experience plays a critical role in the development of basic affective processes. Based on these findings, early adverse experiences such as disruption of the mother-infant relationship can cause severe adverse effects on the neural and behavioral development of the child (Cirulli et al. 2003). It has also well established that cognitive processing in the brain is closely interrelated with the social processing of emotion. The structures of the brain that are most involved with functioning of social events are also extensively connected with processing and regulating of emotional states (Hari and Kujala, 2009; Adolphs, 2003).

Furthermore, social neuroscience findings indicate that humans have individual mirror neurons that allow them to regulate their social interactions (Rizzolatti and Craighero, 2004). Mirror neurons are networks in the brain which are activated both when we perform an action and when we observe the same class of actions performed by someone else.

Thus, mirror systems are essentially networks in the brain where systems for perception, and systems for action, converge and feed into one another (Damasio and Meyer, 2008, as cited in Immordino-Yang, 2009). In this way, mirror systems, at the most basic level enable the internalization of the goals of another's actions, including actions that belie emotional states, onto the substrate of one's own self (Immordino-Yang, 2008b). It means that we are constantly reading each others' actions, gestures and faces in terms of underlying mental states and emotions, in an attempt to figure out what other people are thinking and feeling, and what they are about to do next. This is known as "theory of mind" or "mentalizing" (Blakemore, 2010, p. 744).

These findings validate Bandura's social-learning theory and support this idea that learning is influenced by observation of or interaction with others (Bandura, 1986) and reflect the value of the social relationships in the classroom and the extended school. The key message here is that much of learning is not intended in advance and students learn from teacher's actions, reactions, and interactions with other students. On the ground of these findings, the role of dialogue is becoming more important, as much of social interaction is dependent on it. Accordingly, school curriculum should provide opportunities to engage students and teachers and other members of the school community in professional dialogue to negotiate about their work and other relevant topics as a way of contributing to the creation of a better society. Teachers in this context not only teach, but they also participate in true dialogues with and learn from students (Nouri, 2014).

## **5. CONCLUSIONS**

Dialogue is an interactive process of construction of meaning which has been recognized as a method of learning and thinking about the time of Socrates to the present. There is a range of various perspectives from philosophy (e.g. Buber, 1970; Bakhtin, 1986; Habermas, 1987), psychology (e.g. John-Steiner and Tatter, 1983; Pickering and Garrod, 2004) and education (e.g. Dewey, 1930; Freire, 1970) focused on the significance of dialogue as an indispensable component of the process of both learning and knowing (see Pihlgren, 2008 for a comprehensive review of the theoretical literature of dialogue in education).

There are also an increasing number of

empirical studies increasingly demonstrating the significant impact of dialogic learning on students' thinking and learning (e.g. [Frijters et al. 2008](#); [Alfassi, 2009](#)). In almost all of these studies, dialogic learning has been represented as a means to improve learning, memory, decision making, and thinking. And now, recent advances in neuroscience regarding the fundamental role of social interaction in learning are providing a new basis for the communicative conception of learning in which authentic interaction and dialogue are key components.

As a whole, research into dialogic learning is supported by a rich and interdisciplinary theoretical and empirical background and then it can be considered as "one standard way of teaching" ([Battro, 2010](#)) which persists more than 24 centuries after its conception by Socrates ([Goldin et al. 2010](#)).

Although this conclusion may not be adequate to explain all of the neural bases of dialogue, it provides a useful motivation to establish and legitimate a strong neuroscience foundation for dialogic pedagogy. However, many issues and avenues of research remain to be further investigated in regard to the role of dialogue on students' mind and brain development. It needs empirical research exploring whether and how engagement with different kinds of dialogue may change and develop individual brains. The impact of dialogue on students' attention and motivation should also be taken into consideration. It thus requires encouraging interdisciplinary collaboration based on authentic dialogue among scientists and educators ([Nouri, 2013](#)).

### Conflict of interests

Authors declare no conflict of interest.

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